Docket PCN 5: Idaho Power Company's Testimony in Support of Petition for Certificate of Public Convenience and Necessity

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McDOWELL RACKNER GIBSON PC
419 SW 11th Ave, Suite 400 | Portland, OR 97205

ALISHA TILL
Direct (503) 290-3628
alisha@mrg-law.com

September 30, 2022

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
Filing Center
P.O. Box 1088
201 High Street S.E., Suite 100
Salem, OR 97308-1088

Re: Docket No. PCN 5 – In the Matter of Idaho Power Company's Petition for Certificate of Public Convenience and Necessity.

Attention Filing Center:

Attached for filing in the above-referenced docket is Idaho Power Company's Direct Testimony of Jared Ellsworth (Idaho Power/100-102) and Lindsay Barretto (Idaho Power/200-203) in Support of the Petition for a Certificate of Public Convenience and Necessity. Confidential copies are being sent via Huddle or encrypted zip file to the Filing Center and parties who have signed Protective Order No. 22-309.

Please contact this office with any questions.

Thank you,

Alisha Till

Alisha Till
Paralegal

Attachments

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

DOCKET NO. PCN 5

In the Matter of	)
	)
IDAHO POWER COMPANY'S	)
	)
PETITION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY.	))))

IDAHO POWER COMPANY

DIRECT TESTIMONY

OF

JARED L. ELLSWORTH

Redacted

September 30, 2022

Q. Please state your name, business address, and present position with Idaho Power Company (Idaho Power" or "Company).

A. My name is Jared L. Ellsworth and my business address is 1221 West Idaho Street, Boise, Idaho 83702. I am employed by Idaho Power as the Transmission, Distribution & Resource Planning Director for the Planning, Engineering & Construction Department.

Q. Please describe your educational background.

A. I graduated in 2004 and 2010 from the University of Idaho in Moscow, Idaho, receiving a Bachelor of Science Degree and Master of Engineering Degree in Electrical Engineering, respectively. I am a licensed professional engineer in the State of Idaho.

Q. Please describe your work experience with Idaho Power.

A. In 2004, I was hired as a Distribution Planning engineer in the Company's Delivery Planning department. In 2007, I moved into the System Planning department, where my principal responsibilities included planning for bulk high-voltage transmission and substation projects, generation interconnection projects, and North American Electric Reliability Corporation's (NERC) reliability compliance standards. I transitioned into the Transmission Policy & Development group with a similar role, and in 2013, I spent a year cross-training with the Company's Load Serving Operations group. In 2014, I was promoted to Engineering Leader of the Transmission Policy & Development department and assumed leadership of the System Planning group in 2018. In early 2020, I was promoted into my current role as the Transmission, Distribution and Resource Planning Director. I am currently responsible for the planning of the Company's wires and resources to continue to provide customers with cost-effective and reliable electrical service.

Q. What is the purpose of your testimony in this case?

A. The purpose of my testimony is to present the need and justification for the Boardman to Hemingway transmission line (B2H project). The following is a summary of the items I will discuss at length in my testimony:

- As the B2H project entered into the permitting and pre-construction phase, project participants Idaho Power, PacifiCorp, and Bonneville Power Administration (BPA), executed a non-binding term sheet (Term Sheet) that addresses B2H ownership, transmission service considerations, and asset exchanges. The Term Sheet provides that Idaho Power will acquire a 45.45 percent ownership share of B2H – which reflect an increase of 24.24 percent over the ownership share previously anticipated in the Permit Funding Agreement. This increase results from Idaho Power's acquisition of BPA's 24.24 percent ownership share initially reflected in the Permit Funding Agreement. The Term Sheet reflects that, instead of an ownership interest, BPA will commit to acquiring B2H capacity from Idaho Power through transmission service agreements. . The Company and PacifiCorp will execute a Construction Funding Agreement that will cover all work necessary to construct the B2H project.
- First identified in the 2006 Integrated Resource Plan (IRP), the B2H project has proven to be a cost-effective resource through successive IRPs. The B2H project was identified as part of the preferred resource portfolio in Idaho Power's 2009, 2011, 2013, 2015, 2017, 2019 and most recently in the 2021 IRP.
- The results of the 2021 IRP preferred portfolio indicates the Base with B2H portfolio minimizes both cost and risk, and when compared to the lowest cost non-B2H portfolio, the cost difference definitively shows that the B2H project is a necessary component of the Company's preferred portfolio, assuming comparable risk performance to other portfolios.

- The transmission assumption used in the modeling of the 2021 IRP includes B2H project costs assuming Idaho Power's 45.45 percent ownership share, which are offset by transmission wheeling revenue benefits associated with B2H.
- Aside from being the least-cost preferred portfolio, the B2H project will provide: (1) improved economic efficiency and renewable integration, (2) grid reliability/resiliency, (3) resource reliability, (4) contingency reserves and reduced electrical losses, (5) capacity to the Four Corners market hub, and (6) Borah West and Midpoint West capacity upgrades.
- Idaho Power evaluated B2H project capacity risk, cost risk, and in-service date risk extensively.

I. THE B2H PROJECT PARTICIPANTS

Q. What entities have participated in funding the permitting of the B2H project?

A. Idaho Power, PacifiCorp, and BPA (collectively referred to as the "Parties") are parties to the Permit Funding Agreement, initially executed January 12, 2012, and amended several times (Permit Funding Agreement), to jointly support the regulatory processes associated with obtaining necessary permits and other work to develop the B2H project. Collectively, the Parties represent a very large electric service footprint in the western United States and have all recognized the regional significance of the B2H project.

Q. What are the key provisions of the Permit Funding Agreement?

A. The Permit Funding Agreement is intended to align the Parties' cost responsibility for funding with their assigned B2H project capacity allocations. Those allocations include a seasonal capacity arrangement between Idaho Power and BPA – which is a major benefit for Idaho Power's customers. Specifically, the agreement provides that Idaho Power's west-to-east share of B2H project capacity is 500 MW in the summer season

(April-September), and 200 MW in the winter (January-March and October-November) to serve its native customers, whereas BPA's west-to-east share is 250 MW in the summer and 550 MW in the winter. Idaho Power and BPA's share of the B2H project make up 750 MW of west-to-east capacity. This seasonal capacity arrangement affords Idaho Power 500 MW of summer season capacity at a cost equivalent to 350 MW, a significant cost-reduction benefit that I will discuss later in my testimony. The synergies between BPA's capacity needs (winter focused) and Idaho Power's capacity needs (summer focused) will lead to high utilization of the B2H projects increased capacity. Finally, the Permit Funding Agreement includes a buyout option, stating that once the B2H project receives a Record-of-Decision from the Bureau of Land Management, any party can trigger the Construction Negotiation Phase, and move forward with executing definitive construction funding agreements. If one party chooses not to move forward, the other parties that wish to move forward are required to buy that party out, with the exiting party receiving full compensation for its permitting costs.

Q. What was BPA's interest in the B2H project at the time the Permitting Agreement was initially executed?

A. BPA has a load service obligation for its customers spread across southeast Idaho including Lost River Electric, Fall River Rural Electric Cooperative, Salmon River Electric Cooperative, City of Idaho Falls, City of Soda Springs, and Lower Valley Electric. Starting back in the 1970s, Idaho Power worked with BPA to explore the construction of a 500-kV line from the Pacific Northwest to the Idaho Power service area, which would have provided BPA a connection across southern Idaho for BPA to serve its customers (including its south Idaho customers BPA currently serves via Idaho Power transmission today). This contemplated line was essentially what the B2H project is today but was never constructed. Rather than build the line, BPA and

PacifiCorp executed a power exchange agreement whereby BPA would deliver power to PacifiCorp customers in the Oregon area, and in exchange, PacifiCorp would deliver power to BPA customers in southeast Idaho. PacifiCorp terminated this agreement, with five-years notice, in 2011. Since 2016, BPA has served its southeast load via combinations of firm transmission across PacifiCorp, conditional firm transmission across Idaho Power, and southern power market purchases. As a result of these events, BPA desired a direct transmission connection, with no transmission wheel, or a single transmission wheel, between the Federal Columbia River Power System and its customers.

Q. What interest in B2H did the Permit Funding Agreement originally anticipate for BPA?

A. Under the Permit Funding Agreement, BPA has a 24.24 percent ownership share. As discussed in more detail below, Idaho Power is now planning to acquire BPA's 24.24 percent ownership share of the permit funding.

Q. What was PacifiCorp's interest in the B2H project at the time the Permit Funding Agreement was initially executed?

A. Around the time Idaho Power began permitting the B2H project, the Company and PacifiCorp also began to jointly permit the Gateway West project. Gateway West extends between Hemingway, as the western terminus, and east-central Wyoming, as the eastern terminus. To complement Gateway West and connect its western Balancing Area (PACW) and eastern Balancing Area (PACE) together, PacifiCorp required an additional segment between the Pacific Northwest and Hemingway. The B2H project would provide strategic value to PacifiCorp connecting the two regions, providing bidirectional capacity to increase reliability and enable more efficient use of resources. Under the Permit Funding Agreement, PacifiCorp has a 54.55 percent ownership share.

Q. What other related negotiations did the Parties pursue when executing the Permit Funding Agreement?

A. Coincident with the development of the Permit Funding Agreement, the Parties also executed a Memorandum of Understanding, which detailed high-level parameters of different asset exchanges between Idaho Power, BPA, and PacifiCorp. The asset exchanges, as they are envisioned today, will be discussed later in my testimony.

Q. Have the Parties made progress on final definitive agreements toward project ownership and participation?

A. Yes. Via a revised Permit Funding Agreement, the B2H project is currently in the permitting and pre-construction phase. In addition, on January 18, 2022, and after significant discussions, study efforts, and negotiations, the Parties executed the Term Sheet[1], which addresses B2H project ownership, transmission service considerations, and asset exchanges. The Parties entered into the Term Sheet after over two years of discussions related to next steps associated with the B2H project.

Q. Does the Term Sheet reflect any changes to the ownership arrangements that had been contemplated in the Permit Funding Agreement?

A. Yes. A decade has passed since the Parties signed the Permit Funding Agreement and the Parties' capacity needs, strategies, and goals associated with the B2H project have evolved. As a result, the Parties negotiated the Term Sheet as the framework for future agreements required between and among the Parties. Per the Term Sheet, BPA will transition out of its role as a joint permit funding coparticipant and will instead rely on the B2H project by taking transmission service from Idaho Power to serve its customers. To accommodate this change, Idaho Power will increase its B2H project ownership share to 45.45 percent by acquiring BPA's B2H project capacity. Under the

[1] See Idaho Power/203, Barretto/ (Term Sheet) (provided as Attachment 1 to Idaho Power's Response to Standard Data Request No. 2).

terms of the agreement, the Company and PacifiCorp will execute a Construction Funding Agreement that will cover all work necessary to construct the B2H project. The Company expects to execute a Construction Funding Agreement with PacifiCorp in 2023.

Q. Does the approach agreed to in the Term Sheet maintain the benefits to Idaho Power and its customers of the initially contemplated ownership arrangements?

A. Yes. I will discuss the B2H project's cost effectiveness later in my testimony. In terms of the arrangement with BPA, as previously discussed, BPA and Idaho Power identified synergies associated with each party's B2H project capacity needs. BPA needed more winter capacity between the Pacific Northwest and Idaho, and Idaho Power needed more summer capacity. BPA and Idaho Power negotiated the sum of their capacities to fit together like puzzle pieces with total capacity equal to 750 MW. BPA's capacity included 400 aMW (250 MW summer / 550 MW winter) and Idaho Power's capacity included 350 aMW (500 MW summer / 200 MW winter). The new arrangement, whereby BPA purchases transmission service on the B2H project for the capacity that it had formerly planned to acquire through ownership, maintains the benefits of the B2H project for each party and their customers.

Q. What is the resulting capacity interest following execution of the Term Sheet?

A. Idaho Power's B2H project capacity will increase to 750 MW west-to-east, of which the Company plans to utilize 500 MW in the summer months (April–September) and 200 MW in the winter months (January–March and October–December) for Idaho Power customer service, and the remainder will primarily be used to provide BPA network transmission service across southern Idaho. PacifiCorp's B2H project ownership interest is not impacted by BPA transitioning out of ownership of the project and their B2H capacity will remain at 300 MW west-to-east and 600 MW east-to-west. There remains 400 MW of unallocated B2H project east-to-west capacity, of which 182 MW is expected to be allocated to Idaho Power and 218 MW allocated to PacifiCorp, based on their ownership share.

Q. What is required of Idaho Power once BPA's ownership share is assumed?

A. The Term Sheet adjusts funding and ownership percentages such that the Company will acquire BPA's permitting interest and funding of 45.45 percent of the B2H project costs while providing transmission service across southern Idaho to BPA's customers through Network Integration Transmission Service Agreements (NITSA's) under Idaho Power's Open Access Transmission Tariff (OATT). In addition, the Company will reimburse BPA over time for the value of the permitting costs paid by BPA.

Q. Will payments received from BPA under the NITSA reimburse the Company for its increased share of the B2H project?

A. Yes. BPA's transmission service payments to Idaho Power under the full term of the NITSAs are projected to offset the Company's costs associated with its increased share of the B2H project to support BPA's usage, and, therefore, Idaho Power's customers will not be harmed by the changes to the arrangement. In addition, as an added protection for customers, under the Term Sheet, BPA has agreed to enter into a NITSA security and risk backstop agreement (NITSA Security Agreement), concurrent with the NITSAs and purchase and sale agreements. Under the NITSA Security Agreement, the Company will hold, as a security payment, an amount equivalent to BPA's investment in the B2H project prior to the transfer of permitting interest to Idaho Power, or the approximately $25 million BPA has paid towards permitting costs to date. BPA will also pay Idaho Power an additional $10 million with the intent of offsetting B2H project costs during construction, for a total security deposit of $35 million. At this time, Idaho Power and BPA continue to negotiate the treatment of the $35 million. The Company anticipates it will return a portion of the $35 million when the B2H project is energized, and interest on the remaining amount will begin to accumulate. Because the revenue associated with BPA's usage of the B2H project in the early years of the agreement will be less than the associated annual revenue requirement, the unreturned portion of the $35 million will mitigate any potential default risk until BPA has fully paid for its share of B2H project costs over time.

Q. Please explain why BPA's payments under the NITSAs will not immediately offset the Company's costs associated with BPA's usage of the B2H project.

A. The rate for which BPA will be charged under the NITSAs is based on the network transmission service rates under Attachment H of Idaho Power's OATT. Rates for transmission service are updated in October of each year, based on the previous calendar year's actual financial data. Because of the regulatory lag that exists between when transmission costs are incurred and when transmission rates are updated, under recovery of revenue requirement amounts associated with the network transmission service provided to BPA will occur in the first few years the NITSAs are in effect. Once all agreements with BPA have been executed, and prior to energization of the B2H project, the Company will request authorization from the Commission for accounting treatment that will ensure the Company's retail customers are not harmed by the arrangement and until such time as cumulative network transmission service revenues received from BPA exceed BPA's cumulative share of the B2H revenue requirement.

Q. Will the Company be responsible for repaying the security deposit to BPA?

A. Yes. At the time the NITSAs and the NITSA Security Agreement are executed, BPA and Idaho Power will execute an agreement, assignment, and other applicable transfer documents, to transfer all of BPA's permitting interest to the Company in exchange for Idaho Power's agreement for repayment to BPA of BPA's investment in the B2H project, and the additional $10 million security deposit.

Q. Have Idaho Power and BPA come to an agreement on when the repayment will occur?

A. No. The Term Sheet details the high-level terms however, the parties continue to negotiate definitive agreements, but have agreed in principal that repayment obligations will begin no earlier than year 11.

Q. Are there any additional terms agreed to between Idaho Power and BPA under the Term Sheet?

A. Yes. The Term Sheet has identified a related transaction between the Company and BPA. Idaho Power will secure 500 MW of point-to-point transmission service from BPA from the Mid-Columbia (Mid-C) hub to the proposed Longhorn station, which will provide the Company a direct connection to the Mid-C market with flexible long-term BPA wheeling rights. In addition, the Parties have agreed to terms specific to funding of the Longhorn station, which BPA will own and operate, and where the B2H project interconnects.

Q. Does the Term Sheet identify any agreements between Idaho Power and PacifiCorp?

A. Yes. In addition to the transactions directly related to construction and operation of the B2H project, the Company and PacifiCorp have agreed to exchange certain assets upon completion of B2H to enable Idaho Power to utilize 200 MW of bidirectional transmission capacity between the Company's system and the Four Corners Substation in New Mexico. Idaho Power will also acquire PacifiCorp assets around the Goshen, Idaho area necessary to provide transmission service to BPA to serve their southeast Idaho customers. PacifiCorp will acquire transmission assets of the Company and their related capacity sufficient to enable PacifiCorp to utilize 600 MW of east-to-west and 300 MW of west-to-east transmission capacity across southern Idaho.

Q. Are there any additional terms agreed to between the Company and PacifiCorp under the Term Sheet?

A. Yes. There will be some changes to existing point-to-point transmission service agreements that will be necessary to facilitate the proposed ownership structure of the B2H project. PacifiCorp will terminate its existing 510 MW of east-to-west transmission service across southern Idaho because, as I will discuss later in my testimony, they will acquire ownership of 600 MW of east-to-west capacity as a result of the asset exchange with the Company. In addition, PacifiCorp will acquire 300 MW of west-to-east conditional firm service, 200 MW of which will be obtained through reassignment of BPA's west-to-east conditional firm service and 100 MW procured from Idaho Power across southern Idaho. The changes will provide PacifiCorp west-to-east capacity or ownership that they previously did not hold. In addition to the changes in point-to-point transmission service agreements, two system upgrade projects will be required to enable the increased transmission flows through Idaho.

<u>Asset Exchange</u>

Q. You indicated that under the Term Sheet, asset exchanges between Idaho Power and PacifiCorp will be required in order to facilitate certain terms under the agreement. What asset exchanges will be required to meet the objectives of the Term Sheet?

A. Under the Term Sheet, the Company has agreed with PacifiCorp to exchange assets necessary to allow for (1) the transfer to PacifiCorp by Idaho Power of transmission assets between Midpoint and Borah to facilitate 300 MW of west-to-east capacity, (2) the transfer to PacifiCorp by Idaho Power of transmission assets between Borah and Hemingway to enable an additional 600 MW of east-to-west capacity, increasing from the current 1,090 MW to 1,690 MW, (3) the transfer to Idaho Power by PacifiCorp of transmission assets between Populus, Mona, and Four Corners to allow for 200 MW of bi-directional capacity, and (4) other revisions necessary to facilitate other asset exchanges that may be required.

Q. Is the Company aware of any other revisions that may be necessary to facilitate other asset exchanges?

A. Yes. Under the Term Sheet, PacifiCorp and Idaho Power agreed to negotiate an asset exchange that will enable BPA to serve its loads currently in PacifiCorp's East transmission system with one leg of firm network transmission service from the Company, a Goshen area asset exchange. Idaho Power, PacifiCorp and BPA agreed to make best efforts to plan for service to Idaho Falls that requires only one leg of network transmission from the BPA transmission system. For this to occur, the asset exchange will require PacifiCorp to transfer to Idaho Power certain Goshen-area transmission assets. The parties plan to incorporate the asset exchange in the broader purchase and sale agreement to minimize changes to each company's transmission rate base.

Q. Have any additional details regarding the other asset exchanges been established?

A. The transfer by Idaho Power of transmission assets will provide ownership to PacifiCorp on the Company's existing transmission system from Borah/Kinport to Hemingway and from Midpoint 500 to Borah/Kinport, including 500-kV and 345-kV transmission lines creating a path between the Borah, Kinport, Adelaide, Midpoint and Hemingway substations. In addition, upgrades will be required across the Borah West and Midpoint West paths to facilitate this portion of the proposed asset exchange.

For Idaho Power's ownership on the existing PacifiCorp transmission system from the Four Corners substation in New Mexico to the Populus station in Idaho, transmission assets will include 345-kV transmission lines between the Four Corners, Pinto, Huntington, Camp Williams, Mona, Terminal, 90th South, Ben Lomond, and

Populus substations. Consistent with federal processes, the Company and PacifiCorp will complete required studies to determine whether recent system upgrades result in a possible increase in existing transmission capacity between Borah and Populus to facilitate Idaho Power's incremental transfer needs associated with this exchange. If determined necessary, the parties will identify revisions to existing agreements, upgrades, modifications, or other options to meet each party's commercial needs between Borah and Populus.

Q. Is Idaho Power requesting approval of those asset exchanges as part of the request in this case?

A. No. The Company will request approval of the asset exchanges in a future proceeding. The asset exchanges will not be effective until energization of the B2H project which is expected to occur in 2026. Idaho Power and PacifiCorp are currently in the process of determining the specific assets to be exchanged and those necessary for facilitating the capacity rights envisioned under the Term Sheet. Once a Joint Purchase and Sale Agreement for the asset exchange has been executed, both the Company and PacifiCorp will request approval of the agreement pursuant to Oregon Revised Statute (ORS) 757.480, ORS 757.485 and OAR 860-027-0025, detailing the benefits associated with the assets being exchanged and demonstrating the transaction is consistent with the public interest.

II. <u>TRANSMISSION PLANNING AND THE IRP PROCESS</u>

Q. What is the goal of the IRP?

A. The goal of the IRP is to ensure: (1) Idaho Power's system has sufficient resources to reliably serve customer demand and flexible capacity needs over a 20-year planning period, (2) the selected resource portfolio balances cost, risk, and environmental concerns, (3) balanced treatment is given to both supply-side resources and demand-side measures, and (4) the public is involved in the planning process in a meaningful way. For reliability purposes, the Company plans its resource portfolio to have a Loss of Load Expectation (LOLE) of 0.05 days per year or better (i.e. less than one resource adequacy related outage event in 20 years).

Q. Please explain the concept of Loss of Load Expectation.

A. The LOLE is a statistical measure of a system's resource adequacy, describing the expected number of days per year that a system would be unable to meet demand. Idaho Power plans to meet a reliability threshold of 0.05 days per year, or better, which represents one resource adequacy related outage event, or less, in 20 years. The Company utilizes test years, based on historical data, to calculate its LOLE. Given Idaho Power's dependence on its hydro system, which fluctuates with water conditions, and the increased frequency of extreme events, the Company has aligned its resource adequacy methodology with the Northwest Power Conservation Council. The calculation of a system LOLE is complex, and not easily input into modeling software, therefore, the Company converts its LOLE methodology into a tabulated load and resource balance for the purposes of long-term planning.

Q. Please explain the "load and resource balance."

A. The load and resource balance is the Company's tabulated plan that identifies resource deficiencies during the 20-year IRP planning horizon. It helps ensure Idaho Power has sufficient resources to meet projected customer demand plus a margin to account for extreme conditions, reserves, and resource outages, and is checked against the LOLE. It is critical when comparing future resource portfolios that each plan achieve at least a base reliability threshold.

Q. How is the resulting resource sufficiency or deficiency determined through the load and resource balance?

A. At a high level, the load and resource balance incorporates the expected availability of Idaho Power's existing resources, comparing the total output to the Company's forecasted load, and illustrates the resulting surplus or deficit by month. This will identify the Company's first resource need date, or the point at which Idaho Power's reliability requirements may not be met.

Q. How is the expected availability of the Company's existing resources determined?

A. The availability of existing resources, including Public Utility Regulatory Policies Act projects, power purchase agreements, hydro, coal, gas, demand response, and market purchases, is determined using a number of factors such as expected stream flows, plant run times, forced outages, historical performance, and transmission import capability, among other considerations.

Q. You indicated the availability of resources is compared to Idaho Power's forecasted load. How is the load forecast determined?

A. Each year, the Company prepares a forecast of sales and demand for electricity based on a combination of historical system data and trends in electricity usage along with numerous external economic and demographic factors. The anticipated average load and anticipated peak-hour demand forecast represent Idaho Power's most probable outcome for load requirements during the planning period. The difference between the expected availability of the Company's existing resources and the forecasted load is the resulting surplus or deficit by month.

Q. How does the Company address a resource deficiency identified through the load and resource balance analysis?

A. Deficits identified through the formation of the load and resource balance are then used to develop resource portfolios through potential combinations of supply-side resources, such as solar plus storage generation facilities, demand-side resources like energy efficiency measures, and transmission projects that increase access to energy markets. The portfolios are then analyzed and the portfolio that best minimizes cost and risk, and meets the LOLE, is selected in the plan as the preferred portfolio.

Q. Please explain the importance of Idaho Power's transmission system with regard to resource planning.

A. The Company's transmission system is a critical component of Idaho Power's ability to provide reliable and fair-priced energy services. Transmission lines facilitate the delivery of economic resources and allow resources to be sited where most cost effective. For much of its history, Idaho Power has relied upon resources outside of its major load pockets to economically serve its customers. The existing transmission lines between Idaho Power and the Pacific Northwest have been particularly valuable.

Transmission lines are constructed and operated at different operating voltages depending on purpose, location and distance. Idaho Power operates transmission lines at 138-kV, 161-kV, 230-kV, 345-kV, and 500-kV. Idaho Power also operates sub-transmission lines at 46-kV and 69-kV. The higher the voltage, the greater the capacity of the line and the lower the relative losses, but also greater construction cost and physical size requirements. Therefore, depending on the capacity needs, economics, distance, and intermediate substation requirements, either 230-kV, 345-kV, or 500-kV transmission lines may be chosen as a resource to facilitate the delivery of economic resources. Attachment 8 to the Petition shows an overview of the Company's high-voltage transmission system.

Q. Please describe the Company's existing transmission capacity between the Pacific Northwest and Idaho Power.

A. Idaho Power owns 1,280 MW of transmission capacity between the Pacific Northwest transmission system and the Company's service territory. Of this, 1,200 MW are on the "Idaho to Northwest" path and 80 MW are on the "Montana-Idaho" path (the

Company has transmission rights through Montana to the Pacific Northwest as part of the Amps Agreement – a legacy agreement currently scheduled to expire in 2025). Avista, BPA, and PacifiCorp share an allocation of capacity on the western side of the Idaho to Northwest path and Idaho Power owns 100 percent of the capacity on the eastern side of the path. To use the Company's share of the Idaho to Northwest capacity to serve customer load, Idaho Power must purchase transmission service from Avista, BPA, or PacifiCorp. Similarly, in order to connect resources in the Pacific Northwest to Idaho Power's transmission system via the Montana-Idaho path, the Company must purchase transmission service from either Avista or BPA to transmit, or wheel, the power across their system and deliver to Idaho Power's transmission system. The Company fully utilizes the capacity of these lines.

Q. Does Idaho Power own any transmission capacity to the south?

A. Yes. The Company owns or controls transmission capacity between utilities in the south via the Idaho – Nevada path with NV Energy, which is utilized to import energy from the North Valmy Power Plant, and the Idaho – Utah path (Path C) with PacifiCorp. There is no firm transmission availability across Nevada to leverage the Idaho – Nevada path's import capacity to access Desert Southwest markets. Regarding Path C, PacifiCorp is the owner and operator of all Path C transmission lines. Idaho Power has secured 50 MW of transmission capacity across PacifiCorp between the months of June and October to access the Desert Southwest markets.

Q. When did the Company begin analyzing transmission adequacy and/or projects in the IRP?

A. Idaho Power began analyzing transmission adequacy as part of the 2000 IRP. Prior to this time, Idaho Power planned for temporary water-related generation deficiencies through the use of short-term power purchases. As a summer-peaking utility, short-term power purchases were successful because the majority of other utilities in the

Pacific Northwest region experienced peak loads during the winter. Therefore, prior to 2000, Idaho Power's IRPs emphasized acquisition of energy rather than construction of generating resources to satisfy load obligations as transmission constraints were not a major impediment of the Company's purchasing power to meet its service obligations. In addition, IRP planning periods were ten years at the time and significant resource deficiencies did not exist in the ten-year planning period. However, because the Company had started experiencing transmission constraints, coupled with expected renewable resource development in the region, transmission adequacy analyses began being performed as part of the 2000 IRP planning process.

Q. How did Idaho Power analyze transmission adequacy?

A. To better assess the adequacy of the power supply and the transmission system, the Company performed a peak-hour transmission analysis which quantifies the magnitude of off-system market purchases that may be required to serve the load and determines if adequate transmission capacity is available to deliver those purchases. The results of the analysis performed as part of the 2000 IRP indicated transmission deficiencies under low water conditions of approximately 150 MW in 2002, growing to 500 MW by 2009.

Q. Did Idaho Power continue to include transmission planning as part of the IRP preparation?

A. Yes. The results of the 2002 IRP transmission adequacy analysis, under a 90th percentile water and 70th percentile load condition, indicated July peak transmission deficiencies of 141 MW and 225 MW in 2003 and 2004, respectively, increasing by 75-90 MW per year beginning in 2006, with deficiencies beginning to appear in December and January as well. The results of the 2004 IRP again showed July peaks were expected to increase by approximately 90 MW per year. By 2013, transmission deficiencies began appearing in May through September and reached nearly 800 MW.

Q. Were any changes made to the 2006 IRP with respect to transmission adequacy?

A. Yes. Beginning with the 2006 IRP, Idaho Power commenced analyzing transmission system constraints for a 20-year planning period. In addition, it was at this time that the transmission analysis began factoring a 95th percentile peak-hour load along with a 90th percentile water and 70th percentile load condition for establishing a capacity target for planning purposes.

Q. How did these refinements impact transmission deficiencies during the 20-year planning period?

A. Deficiencies continued to exist during the summer months throughout the planning period growing from 450 MW in 2011 to as much as 1,800 MW in 2025. As a result, the preferred portfolio selected through the 2006 IRP process, and acknowledged by the Commission with Order No. 07-394, included two significant supply-side resource additions, one of which was 225 MW of additional transmission capacity to occur in 2012 via a connection to the Pacific Northwest power markets, a project at the time envisioned as a 230-kilovolt transmission line between the McNary substation and Boise.[2]

Q. Was this the first time Idaho Power had considered transmission capacity as a supply-side resource addition?

A. Yes, and soon after completion of the 2006 IRP, with Order No. 07-002, the Public Utility Commission of Oregon adopted guidelines regarding integrated resource planning including a guideline specific to transmission:[3]

> Guideline 5: Transmission. Portfolio analysis should include costs to the utility for the fuel transportation and electric transmission required for each resource being considered. In

2 *In the Matter of Idaho Power Company Application for Adoption of its 2006 Integrated Resource Plan*, Docket No. LC 41, Order No. 07-394 at 8 (Sept. 12, 2017).

3 *In the Matter of Public Utility Commission of Oregon Investigation into Integrated Resource Planning*, Docket No. UM 1056, Order No. 07-002, pp. 13-14.

> addition, utilities should consider fuel transportation *and electric transmission facilities as resource options* [emphasis added], taking into account their value for making additional purchases and sales, accessing less costly resources in remote locations, acquiring alternative fuel supplies, and improving reliability.

Q. How does are supply-side resources compared when evaluating costs of resources during the IRP process?

A. When evaluating and comparing alternative resources, two major cost considerations exist: the capital cost of the project, or fixed costs, and the energy cost of the project, or variable costs. Capital costs are derived through cost estimates to install the various projects and energy costs are calculated through a detailed modeling analysis, using the AURORA software, for both transmission capacity and supply-side resource additions. Energy prices are based on forecasted gas prices, coal prices, nuclear prices, hydro conditions, and variable operations and maintenance expenses. Portfolios that include transmission capacity as a resource addition include costs associated with market purchases, as forecasted in the AURORA model.

Q. At what point did the plan for the 230-kV transmission line change to a 500-kV transmission line?

A. Following inclusion of the 230-kV transmission line between the McNary substation and Boise in the preferred portfolio of the 2006 IRP, Idaho Power determined there was insufficient room at the existing McNary substation for major transmission expansion options. In addition, as part of the regional transmission planning public review process conducted by the Northern Tier Transmission Group (NTTG), it was determined a 230-kV project would be unable to meet the Company's overall resource planning requirements and would underutilize a substantial transmission corridor. A project operating at a voltage of 500-kV was selected to match the existing Pacific Northwest transmission grid. The resulting project identified to meet this need, the B2H project, is an approximately 300-mile long, overhead, 500-kV high voltage transmission line between the proposed Longhorn Station near Boardman, Oregon, to the existing Hemingway Substation in southwest Idaho, which is designed to increase capacity between the Pacific Northwest and Idaho Power's service area, adding 1,050 MW of capacity to the Idaho to Northwest path in the west-to-east direction, and 1,000 MW of capacity from east-to-west. Idaho Power/101 shows a map of the region with the B2H project substation termination points.

Q. Has the Company evaluated whether alternative transmission arrangements might better serve Idaho Power's need for transmission capacity?

A. Yes. Idaho Power studied a number of alternative transmission additions to determine the best solution to the Company's need. The Company's analysis assumed the 300-mile line between the Longhorn station and the Hemingway station. The following is a summary of relative capacities, anticipated ratings, and losses for new transmission lines at different operating voltages:[4]

Comparison of Transmission Line Capacity Scenarios – New Lines from Longhorn to Hemingway

Scenario	Line Capacity[1]	Potential Path 14 W- E Increase[2]	Losses on New Circuit(s)[3]
a. Longhorn to Hemingway 230-kV single circuit	956 MW	525 MW	10.8%
b. Longhorn to Hemingway 230-kV double circuit	1,912 MW	915 MW	9.5%
c. Longhorn to Hemingway 345-kV single circuit	1,434 MW	730 MW	6.6%
d. Longhorn to Hemingway 500-kV single circuit	3,214 MW	1,050 MW	4.2%
e. Longhorn to Hemingway 500-kV – two separate lines	6,428 MW	2,215 MW	3.7%
f. Longhorn to Hemingway 500-kV double circuit	6,428 MW	1,235 MW	2.9%
g. Longhorn to Hemingway 765-kV single circuit	4,770 MW	1,200 MW	2.4%

[1] Line Capacity is the thermal rating of the assumed conductors and does not account for system limitations of voltage, stability, or reliability requirements.

[4] A number of factors impact the transfer capability of transmission lines, including distance, technical design, source/sink capabilities, relative location in the bulk electric system, etc.

[2] Potential Rating is based upon study results to date to meet reliability design requirements for the WECC ratings processes, not including simultaneous interaction studies.
[3] Estimated Losses are percent losses for the new line at the Potential Rating loading level. Annual energy losses are dependent on total system loss reductions. All of the scenarios would likely yield a total system loss reduction for the flow levels above.

In addition, the Company evaluated the possibility of constructing a new line built in place of an existing transmission line, known as a rebuild, for a portion of the total line length and a new line built in a new right-of-way for the remaining portion of the total line length. Every rebuild scenario required at least 136 miles of new construction in a new right-of-way.

Comparison of Transmission Line Capacity Scenarios – Rebuild Existing Lines to the Northwest

Scenario	Line Capacity[1]	Potential Path 14 Increase[2]	Losses on New Circuit(s)[3]	Length of Line / New ROW[4]
a. Replace Oxbow - Lolo 230 kV with Hatwai - Hemingway 500 kV	3,214 MW	430 MW W-E 675 MW E-W	3.8%	255 Miles / 136 Miles
b. Replace Oxbow - Lolo 230kV with Hatwai - Hemingway 500 kV - No double circuiting with existing lines	3,214 MW	710 MW W-E 745 MW E-W	4.1%	255 Miles / 167 Miles
c. Replace Walla Walla to Brownlee 230 kV with Sacajawea Tap- Hemingway 500 kV	3,214 MW	400 MW W-E 675 MW E-W	3.5%	288 Miles / 150 Miles
d. Replace Walla Walla to Pallette 230 kV with Sacajawea Tap - Hemingway 500 kV - No double circuiting with existing lines	3,214 MW	720 MW W-E 730 MW E-W	3.8%	288 Miles / 181 Miles
e. Build double circuit 500 kV/230 kV line from McNary to Quartz. Build 500 kV from Quartz to Hemingway	3,214 MW	765 MW W-E 870 MW E-W	3.9%	298 Miles / 168 Miles

[1] Line Capacity is the thermal rating of the assumed conductors and does not account for system limitations of voltage, stability, or reliability requirements.
[2] Potential Rating is based upon study results to date to meet reliability design requirements for the WECC ratings processes, not including simultaneous interaction studies.
[3] Estimated Losses are percent losses for the new line at the Potential Rating W-E loading level. Annual energy losses are dependent on total system loss reductions. All of the scenarios would likely yield a total system loss reduction for the flow levels above.
[4] In addition to utilizing the existing 230-kV right-of-way, each of the scenarios above will require a new ROW to be obtained.

The result of these analyses indicated the only scenarios capable of providing 1,050

MW of west-to-east capacity were new lines at an operating voltage of 500-kV or greater.

Q. Has the capacity of the B2H project received a rating from any other entity?

A. Yes. Early in the B2H project development, the Company coordinated with other utilities in the Western Interconnection via a peer-review process known as the Western Electricity Coordinating Council (WECC) Path Rating Process. Through the WECC Path Rating Process, Idaho Power worked with other western utilities to determine the maximum rating (power flow limit) across the transmission line under various stresses, and system flow conditions on the bulk power system. Based on industry standards to test reliability and resilience, Idaho Power simulated various outages, including the outage of the B2H project, while modeling these various stresses to ensure the power grid was capable of reliably operating with increased power flow. Through this process, the Company also ensured the B2H project did not negatively impact the ratings of other transmission projects in the Western Interconnection. Idaho Power completed the WECC Path Rating Process in November 2012 and achieved a WECC Accepted Rating of 1,050 MW in the west-to-east direction and 1,000 MW in the east-to-west direction. It was determined that the B2H project would add significant reliability, resilience, and flexibility to the Northwest power grid. Attachment 15 to the Petition is the Project Review Group Phase II Rating Report resulting from this study.

Q. Was the B2H project identified as part of the preferred portfolio of subsequent IRPs?

A. Yes. The B2H project was identified as part of the preferred resource portfolio in Idaho Power's 2009, 2011, 2013, 2015, 2017, 2019 and most recently in the 2021 IRP. In addition, the B2H project has been identified as a regionally significant project, producing a more efficient or cost-effective plan in NTTG's 2007, 2009, 2011, 2013, 2015, 2017, and 2019 biennial regional transmission plans, and in the NorthernGrid, NTTG's successor regional planning organization, 2021 biennial regional transmission plan. The B2H project has proven to be a cost-effective resource through successive IRPs.

III. THE B2H PROJECT AND THE 2021 IRP

Q. Please describe the process for analyzing resources as part of Idaho Power's most recent IRP, the 2021 IRP.

A. Historically, the Company manually developed portfolios to eliminate resource deficiencies identified in a 20-year load and resource balance. Under this process, Idaho Power developed portfolios that were demonstrated to eliminate the identified resource deficiencies. However, beginning with the Second Amended 2019 IRP, and again with the 2021 IRP, the Company began using AURORA's long-term capacity expansion (LTCE) modeling capability to develop portfolios.[5]

The logic of the LTCE model optimizes resource additions and exits of generating units based on the performance of each zone defined within WECC and develops resource portfolios under various future conditions, such as sensitivities for natural gas prices, carbon costs, load growth and electrification, transmission and clean energy constraints and timelines. The LTCE model applies a planning margin hurdle and regulation reserve requirements, and then optimizes resource selections around those constraints to determine a least-cost, least-risk portfolio. Available future resources possess a wide range of operating, development, and environmental attributes. Impacts to system reliability and portfolio costs of these resources depend on future assumptions. Each portfolio consists of a combination of resources derived from the LTCE process to enable Idaho Power to supply cost-effective electricity to

[5] Docket LC 74.

customers over the 20-year planning period.

Q. Was any further analysis performed on the portfolios that resulted from the LTCE modeling?

A. Yes. For the 2021 IRP, the Company developed a branching scenario analysis strategy to ensure that the resulting portfolios reasonably identified an optimal solution specific to its customers. Idaho Power/102 details the initial branching evaluation where Idaho Power compared AURORA-optimized portfolios for a base scenario (i.e., planning conditions for all key inputs such as load growth, natural gas price, carbon price, etc.) for six potential future portfolios. Each of these portfolios was fully optimized by the LTCE model: (1) Base with the B2H project, (2) Base with the B2H project but without Gateway West, (3) Base with the B2H project and PacifiCorp Bridger Alignment, (4) Base without the B2H project, (5) Base without the B2H project and without Gateway West, and (6) Base without the B2H project but with PacifiCorp Bridger Alignment. Idaho Power compared the base portfolios that included the B2H project to determine an optimal B2H project-included portfolio (Base with B2H) and compared the base portfolios that did not include the B2H project to determine an optimal B2H-excluded portfolio (Base without B2H PAC Bridger Alignment).

Q. What occurs once the LTCE modeling and robustness testing is complete?

A. Once the portfolios are created using the LTCE model, Idaho Power performs the portfolio cost analysis using the AURORA electric market model, determining operating costs for the 20-year planning horizon for each of the six resource portfolios. The AURORA software applies economic principles and dispatch simulations to model the relationships between generation, transmission, and demand to forecast market prices. Various mathematical algorithms simulate the regional electrical system to determine how utility generation and transmission resources operate to serve load. Portfolio costs are calculated as the net present value (NPV) of the 20-year stream of annualized costs, fixed and variable, for each portfolio.

Q. What were the results of the AURORA electric market modeling of the six different portfolios?

A. Each of the six different portfolios were evaluated through three different hourly simulations, including the planning case scenario as well as bookends for natural gas and carbon adder price forecasts. The hourly simulations enable the Company to compare how the portfolios will perform throughout the 20-year timeframe and identify a potential option for a preferred portfolio. The following table presents the results of the hourly simulations:

Table 1. 2021 IRP portfolios, NPV years 2021–2040 ($ x 1,000)

Portfolio	Planning Gas, Planning Carbon	Planning Gas, Zero Carbon	High Gas, High Carbon
Base with B2H	$7,942,428	$7,213,486	$9,858,726
Base B2H PAC Bridger Alignment	$8,021,906	$7,175,514	$9,955,484
Base without B2H	$8,219,281	$7,810,996	$9,501,435
Base without B2H without Gateway West[1]	$8,470,101	-	-
Base without B2H PAC Bridger Alignment	$8,207,893	$7,610,787	$9,675,450
Base with B2H—High Gas High Carbon Test[2]	$8,024,064	-	$9,451,660

[1] The Company did not continue further evaluation of this portfolio beyond planning conditions due to the portfolio's inferior performance (high-cost, poor reliability, and poor emissions performance).

[2] All portfolios were optimized with planning conditions. The "Base with B2H—High Gas High Carbon (HGHC) Test" portfolio includes total renewables equivalent to the "Base without B2H" portfolio and was evaluated to test B2H as an independent variable. The results indicate that B2H remains cost effective, independent of gas price and carbon price and that a pivot to even more renewables in a future with a high gas and carbon price would be appropriate.

This comparison indicates the Base with B2H portfolio best minimizes both cost and risk and is the appropriate choice for the preferred portfolio.

Q. For the IRP portfolios that include the B2H project, do the modeled costs reflect Idaho Power's 45.45 percent ownership share reflected in the Term Sheet?

A. Yes. The 2021 IRP modeled B2H project costs based on Idaho Power's ownership share under the Term Sheet, or 45.45 percent.

Q. How did the cost of the Base with B2H portfolio compare to the Base without B2H PAC Bridger Alignment portfolio as determined through the LTCE

modeling?

A. Comparing the NPV cost of the Base with B2H portfolio to the Base without B2H PAC Bridger Alignment portfolio, results in a $266 million difference. This cost difference definitively shows that the B2H project is a necessary component of the Company's preferred portfolio, assuming comparable risk performance to other portfolios.

Q. Did Idaho Power perform any additional testing of the branching scenario analysis?

A. Yes. To further validate transmission planning results, the Company performed additional robustness testing including various sensitivities and scenarios on the portfolios that included the B2H project, including one specific to the robustness of the B2H project, and testing of capacity sensitivities, cost risks and timing, which I will describe in more detail later in my testimony. The results of all the sensitivities and scenarios performed validated and further verified that the results of the LTCE modeling identified optimal solutions for Idaho Power's customers.

Q. You indicated the cost of a resource is based on the capacity cost, or fixed costs, and the energy cost, or variable costs, of that resource. How did the capacity cost of the B2H project compare to alternative resources when evaluated in the 2021 IRP?

A. The table below provides capital costs for resource options found in the 2021 IRP to have the lowest cost from a capacity perspective:

Table 2. Total capital dollars ($/kW) for select resources considered in the 2021 IRP (2021$)

Resource Type	Total Capital $/kW	Depreciable Life
B2H	$647[1]	55 years
Combined-cycle combustion turbine (CCCT) (1x1) F Class (300 MW)	$1,656	30 years
Simple-cycle combustion turbine — Frame F Class (170 MW)	$900	35 years
Reciprocating Gas Engine (55.5 MW)	$1,560	40 years
Solar PV—Utility-Scale 1-Axis (100 MW) + 4-hr Battery (100 MW)	$2,150	30 years[2]

[1] Uses the B2H 750-MW capacity.
[2] Depreciable life assumed for the solar component is 30 years and is 15 years for the storage component.

The capital costs for the B2H project include local interconnection costs and the project is still roughly 70 percent of the cost of the next lowest-cost resource. Additionally, transmission lines, have a longer depreciable life when compared to a gas plant or a solar plant. The low up-front cost and longer depreciation period further reduce the rate impact to Idaho Power's customers. The summation of these factors shows the B2H project is the lowest capital-cost resource by a substantial margin.

Q. Has the Company performed any modeling outside of the IRP to test whether Idaho Power's current 45.45 percent ownership share in the B2H project is the most cost effective and least risk option?

A. Yes. Although entirely hypothetical, Idaho Power analyzed alternatives to the ownership structure to evaluate the risk associated with, and cost-effectiveness of, a 45.45 percent ownership share to gauge reasonableness of the modeling results. First, bookends were created using results from the 2021 IRP modeling. As shown in Table 1, the least-cost portfolio without the B2H project, Base without B2H PAC Bridger Alignment, is approximately $8.208 billion and the least-cost portfolio with the B2H project, Base with B2H, has a cost of $7.942 billion, indicating a $266 million difference between the two bookends. Next, the Company modeled an extremely conservative scenario in which there is no value associated with the additional capacity Idaho Power gains through acquisition of BPA's ownership share. That means that even under the highly unlikely scenario where the Company receives no transmission revenues associated with its 45.45 percent ownership share, the B2H portfolio remains the most cost-effective and least risk.

Q. What were the resulting portfolio costs?

A. Assuming the unlikely hypothetical scenario results in a portfolio cost of $8.089 billion, indicating that even absent value to the additional capacity Idaho Power will receive with 45.45 percent ownership, the portfolio is still $119 million more cost effective than the lowest cost "without B2H" portfolio. The results indicate that acquisition of BPA's ownership share of the B2H project, with payment from BPA for network transmission service, is the most cost-effective solution for the Company's customers. The B2H project as a resource has demonstrated to be the most cost-effective method of serving projected customer demand and as a transmission line the B2H project also offers incremental ancillary benefits, additional operational flexibility, and access to abundant clean energy in the Pacific Northwest.

IV. THE B2H PROJECT COSTS INCLUDED IN THE PREFERRED PORTFOLIO

Q. What were the B2H project costs included in the 2021 IRP preferred portfolio?

A. The cost estimate included in the 2021 IRP preferred portfolio included B2H project costs assuming Idaho Power's ownership share under the Term Sheet, or 45.45 percent. The capital costs modeled, including Allowance for Funds Used During Construction but excluding any contingency amounts, were $435.5 million (including $10.3 million associated with a Midline Series Capacitor station). In addition, the 2021 IRP preferred portfolio included approximately $96.5 million in additional capital costs associated with the B2H project transmission upgrades, $35.3 million for local 230-kV upgrades necessary to integrate the project into Treasure Valley load center, $46.8 million for southern Idaho upgrades, and an estimated $[redacted] associated with the NPV of the buyout of BPA's permitting interest.[6]

Q. How were the B2H project costs determined?

A. The Company contracted with HDR, Inc. (HDR) to serve as the B2H project's third-party owners' engineer and prepare the B2H transmission line cost estimate. HDR has extensive industry experience, including experience serving as an owner's engineer for BPA for the last seven years. HDR has prepared a preliminary transmission line design that locates every tower and access road needed for the project. HDR used utility industry experience and current market values for materials, equipment, and labor to arrive at the B2H estimate. Material quantities and construction methods are well understood because the B2H project is utilizing BPA's standard tower and conductor design for 500-kV lines. BPA has used the proposed towers and conductor on hundreds of miles of lines currently in-service.

Q. Were substation costs included in this estimate?

A. Yes. Costs associated with three substations are included in the B2H project cost estimate, the Longhorn station, the Hemingway substation, and a Midline Series Capacitor substation. The northern terminus for the B2H project requires the new Longhorn station to tap into the existing BPA 500-kV transmission network. BPA owns the land for the Longhorn station and intends to construct the substation to integrate certain wind projects in the immediate area once all environmental compliance laws are met. As agreed under the Term Sheet, BPA will own all equipment and facilities in the Longhorn station, except B2H-project-specific equipment and facilities that will be jointly owned by Idaho Power and PacifiCorp. The Company's ownership share of the jointly owned equipment is included in the B2H project costs modeled in the 2021 IRP.

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[6] *In re Idaho Power Company, 2021 Integrated Resource Plan*, Docket LC 78, Idaho Power's 2021 IRP Appendix D at 59 (Feb. 16, 2022).

The Idaho Power-owned existing Hemingway substation is designed to accommodate the B2H project line terminal but will require the addition of new equipment, which was also included in the total B2H project costs. The Midline Series Capacitor station was added to the project scope between the 2019 IRP and 2021 IRP to facilitate the operational needs of the Parties, and at this time consists of only a fenced yard and series capacitor. Finally, the B2H project costs also include costs associated with necessary local interconnection upgrades, upgrades necessary to the southern Idaho transmission system and BPA's permitting buyout.

Q. How did the Company calibrate the total B2H project costs for reasonableness?

A. The B2H project costs included in the modeling of the 2021 IRP were reviewed and approved by BPA and PacifiCorp, both of whom have recent 500-kV transmission line construction projects to calibrate against. In addition, Idaho Power worked collaboratively with NV Energy and Southern California Edison to calibrate the B2H project cost estimate against two recent 500-kV projects of theirs.

Q. Transmission capacity can be sold to third parties when not being utilized by the Company. How did Idaho Power model the transmission wheeling revenue benefits associated the B2H project?

A. The B2H project is modeled in AURORA as additional transmission capacity available for Idaho Power energy purchases from the Pacific Northwest. In general, for new supply-side resources modeled in the IRP process, surplus sales of generation are included as a cost offset in the AURORA portfolio modeling. Transmission wheeling revenues, however, are not included in AURORA calculations. To account for this fact, in the 2021 IRP, Idaho Power modeled incremental transmission wheeling revenue from non-native load customers outside of AURORA as an annual revenue credit. Therefore, the preferred portfolio which includes the B2H project, includes a reduction in project costs associated with incremental transmission revenues, ultimately benefiting the Company's retail customers. The transmission revenue credit incorporates any changes in point-to-point reservations with BPA and PacifiCorp as agreed to under the Term Sheet, including expected revenues from the NITSA reservations agreed to by BPA in the Term Sheet.

Q. Are there any potential additional benefits in transmission revenues Idaho Power did not include in its quantification?

A. Yes. Due to significant increase in capacity that the B2H project provides to the Idaho to Northwest path, the Company believes firm, short-term firm, and non-firm usage of the Idaho Power transmission system by third parties could increase, as supported by the over 1,000 MWs of transmission requests that the Company has seen across the Idaho to Northwest path over the past 24 months. Additionally, Idaho Power's acquisition of 200 MW of bidirectional capacity to Four Corners, New Mexico will only further enhance the value of the Company's transmission system to third parties. These potential revenues would further reduce the cost of the B2H project. However, to be conservative, Idaho Power assumed a constant transmission usage by third parties (no increase or decrease) from an average of usage over recent years.

Q. Has Idaho Power updated the B2H project cost estimate since publishing the 2021 IRP?

A. Yes. As Ms. Lindsay Barretto discusses in her testimony,[7] the Company's constructability consultant assisted in updating its B2H project cost estimate and assuming Idaho Power's 45.45 percent ownership share, B2H project costs are estimated to be $[redacted], including a 20 percent contingency. The increase from the 2021 IRP B2H project cost estimated of $435.5 million can primarily be attributed

[7] Idaho Power/200.

to (1) the inclusion of approximately [redacted] in contingency costs, which were not included in the 2021 IRP B2H project costs, and (2) increased material and labor costs due to inflation and supply chain issues.

Q. Why was a contingency amount excluded from the B2H project costs in the 2021 IRP?

A. In the 2021 IRP, none of the modeled resources include a contingency amount, including the B2H project. Therefore, it would have skewed the IRP modeling results to have included a contingency amount in the B2H cost estimate. That said, as I will discuss later in my testimony, the Company did perform a risk analysis in the 2021 IRP in which Idaho Power evaluated 10 percent, 20 percent and 30 percent cost contingencies for informational purposes.

Q. How does the increased B2H cost estimate impact the economics of the project and the conclusions drawn in the 2021 IRP?

A. The 2022 B2H project cost estimate is slightly greater than, but comparable to, the 30 percent cost contingency studied in the 2021 IRP and presented in Table 10.9 below:

B2H cost sensitivities

	B2H Cost Idaho Power Share TOTAL	B2H Cost 2021 IRP NPV
B2H 0% Contingency	$485 million	$159.6 million
B2H 10% Contingency	$526 million	$178.4 million
B2H 20% Contingency	$566 million	$197.2 million
B2H 30% Contingency	$607 million	$216.1 million

The B2H project with a [redacted] cost contingency in the 2021 IRP results in a portfolio cost increase of $56.5 million NPV. If this were the only variable being adjusted, this cost increase would reduce the previously discussed $266 million difference between the Preferred Portfolio and the least-cost without B2H portfolio to [redacted]. However, such a comparison would likely be misleading for two reasons. First, if Idaho Power were to update costs of all capital projects based on current conditions, the B2H project is not the only variable that would change. As I noted above, a primary factor driving the increase in the B2H cost estimate is increased material and labor costs due to inflation and supply chain issues—which would impact the cost of capital projects in all portfolios studied. Indeed, the cost estimate associated with Gateway West in the least-cost without B2H portfolio was based on the Company's B2H cost estimate. Moreover, the 20 percent contingency included in the estimate would need to be removed for a true apples-to-apples comparison. B2H replacement resources have also seen price increases due to inflationary and supply chain pressures since the 2021 IRP was published, therefore, the least-cost B2H portfolio would see some offsetting cost increases as well. Independent of those considerations, Table 10.9 provides sufficient information to ascertain that the B2H project remains highly cost-competitive with a [redacted] contingency, and the [redacted] contingency case is comparable to the updated 2022 estimate of [redacted].

V. JUSTIFICATION FOR THE B2H PROJECT

Q. Aside from the B2H project being a component of the least-cost preferred portfolio, what other benefits does the line provide?

A. The B2H project is key to achieving Idaho Power's goal to provide 100 percent clean energy by 2045 without compromising the Company's commitment to affordability and reliability. In a low-carbon future dominated by renewable resources, geographical diversity of wind and solar, as well as regional utility loads, is a vital component of reliability and affordability, and transmission is the enabler of geographical diversity. B2H provides an incremental 1,000 MW bidirectional connection between the Pacific Northwest and Idaho to enable the clean energy future and provide value to the

Company's customers and the region as a whole. In addition, in-depth studies and experts, such as the American Clean Power Association, cite the need for an expanded and robust transmission system in a decarbonized future.[8] Indeed, the Americans for a Clean Energy Grid highlighted the B2H project as one of 22 projects that were needed to enable the interconnection of around 60,000 MW of additional renewable capacity in the United States.[9] A Net Zero America report from Princeton[10] concluded that the United States will need to expand its electricity transmission system by 60 percent by 2030 in order to achieve net-zero emissions by 2050. In addition, a variety of other benefits are expected: capacity to the Four Corners market hub, Borah West and Midpoint West capacity upgrades, improved economic efficiency, renewable integration, grid reliability/resiliency, resource reliability, contingency reserves, reduced electrical losses, flexibility, Energy Imbalance Market (EIM) value, and economic value along the B2H project route.

<u>Improved Economic Efficiency and Renewable Integration</u>

Q. How does the B2H project improve economic efficiency and the integration of renewable resources?

A. Transmission congestion causes power prices on opposite sides of the congestion to

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[8] AMERICAN CLEAN POWER ASS'N, *Modernizing the Nation's Transmission Infrastructure* (Feb. 2019) (available at https://cleanpower.org/wp-content/uploads/2021/01/June-2021_Transmission-Fact-Sheet.pdf) (last visited Sept. 30, 2022); Robert Walton, *As operators update grid planning for renewables, transmission remains key constraint*, Utility Dive (Sept. 18, 2017) (available at https://www.utilitydive.com/news/as-operators-update-grid-planning-for-renewables-transmission-remains-key/505065/) (last visited Sept. 30, 2022).

[9] Michael Goggin, *et al.*, AMERICANS FOR A CLEAN ENERGY GRID, *Transmission Projects Ready to Go: Plugging into America's Untapped Renewable Resources* at 5 (Apr. 2021) (available at https://cleanenergygrid.org/wp-content/uploads/2021/09/Transmission-Projects-Ready-to-Go.pdf) (last visited Sept. 30, 2022)

[10] PRINCETON UNIV., *Net-Zero America: Potential Pathways, Infrastructure, and Impacts* at 14 (Dec. 15, 2020) (available at https://netzeroamerica.princeton.edu/img/Princeton_NZA_Interim_Report_15_Dec_2020_FINAL.pdf) (last visited Sept. 30, 2022).

diverge as higher-cost, less-efficient resources are dispatched to ensure the transmission system is operating securely and reliably. Congestion can have a significant cost. Historically, during peak summer conditions, the Idaho to Northwest path in the west-to-east direction can often become constrained and power prices in Idaho and to the east can generally be higher than power prices in the Pacific Northwest, a market inefficiency caused by inadequate transmission capacity to economically move power between regions. The B2H project will help alleviate this constraint and enable generators in the Pacific Northwest to gain further value from their existing resource, and load-serving entities in the Mountain West region will be able to meet load service needs at a lower cost. At other times, such as the winter, the roles may reverse with the Pacific Northwest benefiting from economical resources from the Mountain West region with B2H's additional east-to-west capacity.

Similarly, the lack of transmission capacity, at times, prevents the energy from existing renewable generation from moving to load, which in turn requires renewable resources to be curtailed. The B2H project is necessary to integrate and balance variable energy resources like wind and solar as it will facilitate the transfer of geographically diverse renewable resources across the western grid and help ensure the clean energy grid of the future, both Idaho Power's and surrounding states', is robust and reliable. Lawrence Berkley National Laboratory recently published a study titled "Empirical Estimates of Transmission Value using Locational Marginal Prices."[11] In the study, the difference between the EIM_BPAHub node and the EIM_UT node (the EIM Utah node is a close surrogate for Idaho Power), has an approximately $13.50 per MWh mean power spread between 2012 and 2022, resulting in

[11] Dev Millstein, *et al.*, LAWRENCE BERKELEY NATIONAL LABORATORY, *Empirical Estimates of Transmission Value using Locational Marginal Prices* at Slide 20 (Aug. 2022) (available at https://eta-publications.lbl.gov/sites/default/files/lbnl-empirical_transmission_value_study-august_2022.pdf) (last visited Sept. 30, 2022).

approximately $125 million per year in potential energy arbitrage related value. This value, or a subset, was not factored into the 2021 IRP but represents a real benefit to Idaho Power's customers, nevertheless.

Grid Reliability/Resiliency

Q. Please explain how the B2H project will contribute to the reliability and resiliency of the grid.

A. The B2H project will increase the robustness and reliability of the regional transmission system by adding high-capacity bulk electric facilities designed with the most up-to-date engineering standards. Major 500-kV transmission lines, such as the B2H project, substantially increase the grid's ability to recover from unexpected disturbances.

Q. What are some examples of unexpected disturbances whose impacts would be reduced with the addition of the B2H project?

A. While unexpected disturbances are difficult to predict, I can provide a few examples of disturbances whose impacts would be reduced with the addition of the B2H project. First, the loss of the Hemingway–Summer Lake 500-kV transmission line, the only 500-kV connection between the Pacific Northwest and Idaho Power, during peak summer load, is one of the worst possible contingencies the Company's transmission system can experience. Once the Hemingway–Summer Lake 500-kV disconnects, the transfer capability of the Idaho to Northwest path is reduced by over 700 MW in the west-to-east direction. After the addition of the B2H project, there will be two major 500-kV connections between the Pacific Northwest and Idaho Power, reducing risk by increasing redundancy.

Another potential Idaho Power disturbance could be on the same Hemingway-Summer Lake 500-kV line but east-to-west. In this disturbance, an existing remedial action scheme (power system logic used to protect power system equipment) will disconnect over 700 MW of generation at either the Jim Bridger Power Plant or

Wyoming wind to reduce path transfers and protect bulk transmission lines and apparatus. Due to the magnitude of the generation loss, recovery from this disturbance can be extremely difficult. After the addition of the B2H project, this sizable amount of generation shedding will no longer be required. With two 500-kV lines between Idaho and the Pacific Northwest, the loss of one can be absorbed by the other. Keeping 700 MW of generation on the system for major system outages is important for grid stability.

Third, the loss of a single 230-kV transmission tower in the Hells Canyon area could create another transmission disturbance. Idaho Power owns two 230-kV transmission lines, co-located on the same transmission towers, which connect Idaho to the Pacific Northwest. Because these lines are on a common tower, Idaho Power must consider the simultaneous loss of these lines as a realistic planning event. Historically, such an outage did occur on these lines in 2004 during a day with high summer loads. By losing these lines, Idaho Power's import capability was dramatically reduced, and the Company was forced to rotate customer outages for several hours due to a lack of resource availability. With the addition of the B2H project, the impact of this outage would be substantially reduced.

Finally, a more general example is discussed in a recent paper titled "Transmission Makes the Power System Resilient to Extreme Weather" by Grid Strategies[12] which explored the benefits that transmission can provide to regions experiencing extreme weather. During Winter Storm Uri alone, the paper identifies seven different transmission connections that each could have provided over $80 million of benefits per 1,000 MW of transmission capacity for that single event, with

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[12] Michael Goggin, GRID STRATEGIES, LLC, *Transmission Makes the Power System Resilient to Extreme Weather* (July 2021) (available at https://acore.org/wp-content/uploads/2021/07/GS_Resilient-Transmission_proof.pdf) (last visited Sept. 30, 2022).

one specific connection that would have provided nearly $1 billion in benefits per 1,000 MW. Extreme events, such as the 2021 Pacific Northwest heat dome, are increasing in frequency, and transmission lines provide a significant regional diversity, reliability, and resilience benefit.[13]

Resource Reliability

Q. How does the reliability of a transmission line compare to that of a generation resource?

A. The forced outage rate of a resource is the best measure of its reliability, and, in general, the forced outage rate of transmission lines has historically been lower than traditional generation resources. NERC has historically tracked the forced outage rate for transmission availability through a Transmission Availability Data System and generation availability through a Generation Availability Data System.

Q. What are the comparable NERC forced-outage rates of the various resources?

A. The NERC forced-outage rates used in modeling of the 2021 IRP were approximately 6 to 9 percent for coal generation, 3.6 percent for hydro generation, approximately 4.4 percent to 7.3 percent for simple cycle gas generation, 2 percent for combined cycle gas generation and one-quarter of one percent for transmission resources. A transmission line with a forced outage rate of less than 1 percent is significantly more reliable than a power plant - the B2H project is expected to have 99.75 percent availability when needed.

Of course, a transmission line requires generating resources to provide energy to the line to serve load. However, energy sold as “firm” must be backed up and delivered even if a source generator fails. Therefore, firm energy purchases would have an equivalent forced outage rate demand – or EFORd – consistent with the

[13] *Id.* at 5.

transmission line, which is more reliable than traditional supply-side generation. In the management of cost and risk, the B2H project will provide Idaho Power's operators additional flexibility when managing the Idaho Power resource portfolio. In addition to lower costs, the 2021 IRP preferred portfolio is significantly more reliable than the best portfolio that did not include B2H.

Contingency Reserves and Electrical Losses

Q. How will the B2H project support the Company's contingency reserve obligations?

A. During real-time operations, Idaho Power holds generation in reserve to meet its NERC contingency reserve obligation, or generation in reserve equaling at least three percent of network demand plus three percent of internal generation. For market purchase imports, the three percent contingency requirement for the generation is not borne by the Company but rather the producer in the external balancing area is required to meet the reserve obligation associated with its resource, reducing Idaho Power's reserve obligation.

The Company plans to make additional market purchases with B2H and therefore the selling entity will carry the contingency reserve obligation. This reduction in reserve obligation will offset the additional reserve obligations taken on by the Company through the increased amount of BPA customer network load and generation in the Idaho Power area. Idaho Power's reserve obligation during summer peak will be reduced with the B2H project as compared to a replacement internal resource.

Q. Is the B2H project expected to reduce electrical losses?

A. Yes. Losses on the power system are caused by electrical current flowing through energized conductors, which in turn create heat. By constructing the B2H project, less efficient, lower voltage transmission lines with very large transfers are relieved, reducing the electrical current through these lines and dramatically reducing the losses due to heat.

Q. How did Idaho Power estimate the reduction in electrical losses that is expected to result from addition of the B2H project?

A. The electrical losses vary throughout the year depending on flow levels on the lines. To determine an average electrical loss saving benefit for the Company resulting from the B2H project, various seasonal WECC power flow base cases were utilized to simulate flow conditions with and without the addition of the B2H project. In six of the seven cases, the B2H project resulted in a beneficial reduction of losses in the Idaho Power balancing area.

To develop an average loss savings benefit for the B2H project that considers all flow hours, regression analysis was performed to develop quadratic equation coefficients that relate path flows to predicted energy loss savings. Next, historical transmission path flows from the previous five years were captured and analyzed with developed loss savings coefficients. The result of the analysis was a 6.4 MW per hour average electrical loss savings for Idaho Power with the addition of the B2H project.

Capacity to Four Corners Market Hub

Q. Please explain the value of the capacity gained to the Four Corners Market Hub.

A. As explained earlier in my testimony, under the Term Sheet, Idaho Power will acquire from PacifiCorp transmission assets and their related capacity sufficient to enable the Company to utilize 200 MW of bidirectional transmission capacity between the Company's system, at Populus, and Four Corners – the desert Southwest market hub. Eight entities with transmission have connectivity to the Four Corners market hub. Idaho Power will also acquire a connection to entities at Mona in central Utah. This additional capacity should provide the Company with long-term strategic value from a market that is diverse from the Pacific Northwest. Importantly, the desert Southwest is rich with solar potential which is expected to continue its significant growth in the future, New Mexico has significant wind potential, and the number of desert Southwest entities with a presence at this market hub presents significant market diversity opportunities. Idaho Power believes additional access to this market hub during the winter months will prove to be extremely valuable in a low carbon future.

Moreover, the transmission assets between Idaho and Four Corners will provide a valuable firm transmission connection to a market hub that is diverse from Mid-C, enabling two diverse connections to two major western market hubs. As a conservative planning approach, this additional 200 MW of import capacity is set to zero in planning margin calculations for the summer peaking months. The diversity of capacity from multiple market hubs solidifies and supports that the overall B2H project capacity will achieve 500 MW of peak import capacity into Idaho Power.

Borah West and Midpoint West Capacity Upgrades

Q. What value do the southern Idaho upgrades to the Borah West and Midpoint West paths provide?

A. The Borah West and Midpoint West upgrades consist of the addition of a series capacitor to one of the Borah West transmission lines, and a new high-voltage transformer added to a Midpoint West line. These upgrades are required to facilitate the asset exchange with PacifiCorp, enabling PacifiCorp's usage of its share of B2H project capacity, while also relieving the Company of its 510 MW point-to-point transmission service obligation across southern Idaho and enabling Idaho Power to repurpose this transmission to integrate new resources for the benefit of the Company's customers.

In the 2021 IRP, as a conservative estimate, the Company assumed the full $46.8 million cost of these upgrades would be Idaho Power's responsibility. The conservative estimate was chosen because these assets are intended to be utilized to balance the Idaho Power and PacifiCorp asset exchange transaction, and the total values of the assets for each company where unknown. However, subject to final negotiations, it is likely that a portion of these assets will be paid for by PacifiCorp.

Additional B2H Project Benefits and Value

Q. Please describe the additional expected benefits and value of the B2H project you have not yet discussed in your testimony.

A. The B2H project provides Idaho Power with significant flexibility in the acquisition and transfer of generation resources. As advances in technology are driving some generation resources, such as coal plants, toward economic obsolescence, the B2H project serves as an alternative to constructing a new supply-side resource. In this way, the B2H project reduces the risk of technological obsolescence by ensuring Idaho Power customers always have access to the most economic resources, regardless of the resource type. In addition, because the existing electrical system is so heavily used, new transmission line infrastructure like the B2H project will create additional operational flexibility. The B2H project will increase the ability to take other system elements out of service to conduct maintenance and will provide additional flexibility to move needed resources to load when outages occur on equipment. This flexibility of resource types also provides value in the EIM.

Q. How will the B2H project provide additional value in the EIM?

A. The expansion of the transmission system, through the addition of the B2H project, will facilitate further benefits by increasing transmission capacity between Idaho Power and other EIM participants. As fluctuations in supply and demand occur for EIM participants, the market system will automatically find the best resources from across the large-footprint EIM region to meet immediate power needs. This activity optimizes the interconnected high-voltage system as market systems automatically manage congestion, helping maintain reliability while also supporting the integration of variable energy resources and avoiding curtailing excess supply by sending it to where demand can use it. Greater transmission transfer capacity between participants in a market reduces congestion costs and allows the lowest-cost energy to reach a wider load footprint. Idaho Power will utilize the B2H project as a complement to any resource type that allows access to the least-cost and most efficient resource, as well as regional diversity, to benefit all customers in the West.

Q. Will the B2H project provide any economic benefits to the region?

A. Yes. First, the B2H project will result in positive economic impacts for eastern Oregon communities in the form of construction jobs, economic support associated with infrastructure development (e.g., lodging and food), and an estimated increase of $5.8 million in annual tax benefits in total to the counties for project-specific property tax dollars. It will also provide economic development opportunities because it will create available capacity for additional economic development to take place. In Union and Umatilla counties, BPA's McNary–Roundup–La Grande 230-kV line has limited ability to serve additional demand in the Pendleton and La Grande areas but is currently capable of meeting the 10-year load forecast. The B2H project will increase the transfer capability through eastern Oregon by 1,050 MW. This capacity will provide a significant regional benefit to the entire Northwest and specifically benefit load service to eastern Oregon and southern Idaho. It is possible this added capacity resulting from the B2H project could be used to serve additional demand in Union and Umatilla counties.

Portions of Baker County are served by Idaho Power, including the communities of Durkee and Huntington. BPA currently provides energy to Oregon Trails Electric Cooperative (OTEC), which serves Baker City via transmission connections between the Northwest and Idaho Power's transmission system. The existing transmission connections between the Northwest and Idaho Power are fully utilized for existing load commitments, with very little ability to meet load growth requirements. The B2H-project-associated increased transmission connectivity between the Northwest and Idaho Power will allow BPA to serve additional demand in Baker City. Finally, additional transmission capacity can create opportunities for new energy resources, which can add to the county tax base and create new jobs.

Q. Are there any additional benefits you have not discussed?

A. The B2H project will also provide local area electrical benefits. La Grande and Baker City are served by OTEC. Portions of Morrow County and Umatilla County are served by Umatilla Electric Cooperative (UEC) and Columbia Basin Electric Cooperative (CBEC). OTEC, UEC, and CBEC pay BPA's network transmission rate to receive transmission service from the BPA system. BPA plans to kick off a public process related to the B2H project, and the Company expects BPA's business case will show the B2H project is a cost-effective solution to meet BPA customer needs. Correspondingly, given the sharing of BPA's transmission costs among all of BPA's transmission customers, OTEC, UEC, and CBEC customers would also benefit from this cost-effective solution.

VI. <u>RISK ASSOCIATED WITH THE B2H PROJECT</u>

Q. Are there any risks associated with the B2H project?

A. Risk is inherent in any infrastructure development project. As mentioned earlier in my testimony, as part of the 2021 IRP, Idaho Power evaluated capacity risk, cost risk, and in-service date risk extensively. The capacity risk analysis evaluated the impact on portfolio costs in the event that the Company cannot access the fully expected capacity of the B2H project. The cost risk was evaluated by performing a tipping point analysis. And finally, the Company evaluated the impacts of a 2027 in-service date, a year later than expected.

Q. How was the capacity risk analysis performed?

A. The B2H project capacity evaluation looked at portfolio costs assuming the Company can access 350 MW, 400 MW, 450 MW, 500 MW (equivalent to the preferred portfolio), and 550 MW of capacity. The sensitivities performed with capacity amounts less than 500 MW are set up to evaluate risk related to reduced market access. The 550 MW capacity amount sensitivity quantifies potential benefits associated with leveraging additional market purchases to avoid the need for a new resource. To evaluate the impact of different B2H projectcapacity levels, the Company added or subtracted comparable capacity in the form of battery storage (the least-cost alternative to providing sufficient amounts of capacity) to maintain an adequate planning margin, while maintaining the same cost of the B2H project to reflect that the B2H project's capacity contribution toward the planning margin is reduced with no offsetting cost reduction. The results indicated that even with a substantially reduced planning margin contribution, B2H project portfolios remain cost-effective. Additionally, if Idaho Power is able to access an additional 50 MW from the Mid-C hub, that may present a cost-saving opportunity for customers.[14]

Q. What did the cost risk evaluation conclude?

A. A transmission line such as the B2H project requires significant planning, organization, labor, and material over a multi-year process to complete and place in-service. Therefore, it is important to evaluate cost risks when planning for such a project. Idaho Power evaluated the cost of the B2H project assuming no contingency, a 10 percent contingency, a 20 percent contingency, and a 30 percent contingency. The results indicated the B2H project would have to increase significantly beyond a 30 percent

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[14] The B2H project risk analyses can be found in Idaho Power's 2021 IRP Appendix D, pp 63-69.

contingency before the project would no longer be cost-effective, i.e., the tipping point is well beyond a reasonable 30 percent contingency bookend. As I discussed earlier, if the actual costs were to reach these levels likely other comparable resources would have their own increases in costs as well.

Q. Please explain the in-service date risk evaluation.

A. The current planned in-service date for the B2H project is prior to the summer of 2026, which is necessary to meet the peak demand growth needs. Should the B2H project in-service date slip to 2027, other new resources will be required in 2026. Slippage in the schedule from 2026 to 2027 would not be ideal for Idaho Power customers, however, even if that occurs, the B2H project remains the most cost-effective long-term resource.

Q. Were there any additional risk analyses performed with respect to the B2H project?

A. Yes. Idaho Power also performed a liquidity and market sufficiency risk analysis. As explained earlier in my testimony, the Pacific Northwest is a winter peaking region and Idaho Power operates a system with a summer peak which aligns with the Mid-C hydro runoff conditions when the Pacific Northwest is flush with surplus power capacity. However, the existing transmission system between the Pacific Northwest and the Company is constrained. Constructing the B2H project will alleviate this constraint and add 1,050 MW of total transfer capability between the Pacific Northwest and the Intermountain West region. To evaluate the market sufficiency, Idaho Power assessed five different data points. The first data point was a peak load analysis. British Columbia and other utilities in the Pacific Northwest[15] have forecast 2030 winter peaks that exceed their forecast 2030 summer peaks by a combined 8,200 MW. Given

[15] Load serving entities from included are Avista, BPA, British Columbia, Chelan, Douglas, Grant, PAC–West, Portland General, Puget Sound, Seattle City, and Tacoma.

the difference in seasonal peaks, coupled with Columbia River runoff hydro conditions aligning with the Company's summer peak, resource availability in the Pacific Northwest during Idaho Power's summer peak is highly likely.

For the second data point, the Company reviewed a recent resource adequacy assessment performed by BPA that evaluated resource adequacy from 2021 through 2030.[16] Idaho Power concluded from this analysis that: (1) summer capacity will be available in the future, and (2) additional summer capacity will likely be added as the region adds resources to meet winter peak demand. Next, Idaho Power gathered peak load data for the major Pacific Northwest entities in Washington and Oregon to compute the peak coincident load. The results illustrated a wide difference between historical winter and summer peaks.

The fourth data point evaluated the Renewable Portfolio Standard goals by states such as California, Oregon and Washington which will drive policy-driven resource additions, and likely result in more solar generation and additional dispatchable flexible ramping resources, such as battery storage. Solar and solar plus storage align very well with summer peak needs, but their value can be limited in the winter months. Meeting winter needs will require the Pacific Northwest region to overbuild these resources above the level to meet a similar summer demand, likely aligning well with the Company looking to access summer energy needs from the market.

Finally, the fifth data point evaluated the potential new resources reported by northwest utilities in their IRPs. The list of resources includes 6,389 MW of planned new resources through 2031. As expected, the Northwest utilities are continuing to

[16] BPA. *2019 Pacific Northwest loads and resources study*, Technical Appendix, Volume 2: Capacity Analysis (Oct. 2020) (available at https://www.bpa.gov/-/media/Aep/power/white-book/2019-wbk-summary.pdf) (last visited Sept. 30, 2022).

plan for growing winter peak demands by adding capacity resources, furthering the depth of the market for the summer season. All data points demonstrate that there will be sufficient market resources in the future to utilize the B2H transmission line.

VII. CONCLUSION

Q. Please summarize your testimony.

A. The B2H project has been a cost-effective resource identified in each of Idaho Power's IRPs since 2009 and continues to be a cornerstone of Idaho Power's 2021 IRP preferred portfolio. In the 2021 IRP, as has been the case in prior IRPs, the B2H project is not simply evaluated as a transmission line, but rather as a resource that will be used to serve Idaho Power load. That is, the B2H project, and the market purchases it will facilitate, is evaluated in the same manner as a new gas plant, or a new utility-scale solar plus storage project.

As a resource, the B2H project is demonstrated to be the most cost-effective method of serving projected customer demand and meeting clean energy goals. As can be seen in the 2021 IRP, the lowest-cost resource portfolio includes B2H, and the best non-B2H portfolio has a significant cost premium. As a resource alone, the B2H project is the lowest-cost alternative to serve the Company's customers in Oregon and Idaho. As a transmission line, the B2H project also offers incremental ancillary benefits and additional operational flexibility.

The B2H project is nearing its construction phase and project certainty continues to grow with Idaho Power, PacifiCorp, and BPA executing a Term Sheet related to next steps associated with the B2H project. The Term Sheet addresses the Parties' capacity needs, strategies, and goals associated with the B2H project. The Company has extensively evaluated the B2H project as a supply-side resource, explored many of the ancillary benefits offered by the transmission line, and considered the risks and benefits of owning a transmission line connected to a market hub in contrast to direct ownership of a traditional generation resource. Once operational, the B2H project will provide Idaho Power increased access to reliable, clean, low-cost market energy purchases from the Pacific Northwest. In addition, the B2H project will increase the efficiency, reliability, and resiliency of the electric system by creating an additional pathway for energy to move between major load centers in the West. The benefits in aggregate reflect the B2H project's importance to the achievement of Idaho Power's goal to provide 100 percent clean energy by 2045 without compromising the Company's commitment to reliability and affordability.

Q. Does this complete your testimony?

A. Yes, it does.

McDOWELL RACKNER GIBSON PC
419 SW 11th Ave, Suite 400 | Portland, OR 97205

ALISHA TILL
Direct (503) 290-3628
alisha@mrg-law.com

September 30, 2022

VIA ELECTRONIC FILING

Public Utility Commission of Oregon
Filing Center
P.O. Box 1088
201 High Street S.E., Suite 100
Salem, OR 97308-1088

Re: Docket No. PCN 5 – In the Matter of Idaho Power Company's Petition for Certificate of Public Convenience and Necessity.

Attention Filing Center:

Attached for filing in the above-referenced docket is Idaho Power Company's Direct Testimony of Jared Ellsworth (Idaho Power/100-102) and Lindsay Barretto (Idaho Power/200-203) in Support of the Petition for a Certificate of Public Convenience and Necessity. Confidential copies are being sent via Huddle or encrypted zip file to the Filing Center and parties who have signed Protective Order No. 22-309.

Please contact this office with any questions.

Thank you,

Alisha Till

Alisha Till
Paralegal

Attachments

REDACTED

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

DOCKET NO. PCN 5

In the Matter of	)
IDAHO POWER COMPANY'S	)
PETITION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY.	)

IDAHO POWER COMPANY

DIRECT TESTIMONY

OF

LINDSAY BARRETTO

Redacted

September 30, 2022

Q. Please state your name, business address, and present position with Idaho Power Company (Idaho Power" or "Company).

A. My name Lindsay Barretto. My business address is 1221 West Idaho Street, Boise, Idaho 83702. I am employed by Idaho Power as the 500 kilovolt (kV) and Joint Projects Senior Manager.

Q. Please describe your educational background.

A. I received a Bachelor of Science degree in Civil Engineering from Purdue University, West Lafayette, Indiana in 2005. In 2007, I earned a Master of Science degree in Civil Engineering from Purdue University. I am a registered professional engineer in the state of Idaho.

Q. Please describe your work experience with Idaho Power.

A. I began my employment with Idaho Power in 2010 as an engineer in Power Production's Civil Engineering department. As an engineer I worked on hydroelectric and hatchery projects and regulatory compliance. In 2015, I moved to Transmission and Distribution Engineering and Construction as a project manager leading power line and substation projects. In 2018, I became an Engineering Leader, responsible for the Stations Engineering and Design department. In 2020, I was promoted to my current position, Senior Manager of 500-kV and Joint Projects, where my responsibilities include supervision over Idaho Power's 500-kV projects.

Q. What is the purpose of your testimony in this case?

A. My testimony begins with a description of the Boardman to Hemingway transmission line (B2H project) design and the standards and guidelines for which it is constructed and operated. Next, I describe the siting and permitting process that has spanned over a decade, including the federal, state, and local permits necessary for construction and operation of the B2H project in Oregon. Finally, I will discuss the costs associated with the B2H project and the easements for which Idaho Power may need condemnation authority.

I. THE B2H PROJECT DESIGN

Q. Please describe the design of the B2H project.

A. The B2H project is a 500-kV transmission line between Boardman, Oregon and the Hemingway substation in southwestern Idaho. It consists of approximately 298 miles of electric transmission line, with 274 miles located in Oregon and 24 miles in Idaho. The B2H project will require 298 miles of single-circuit 500-kV transmission line, removal of 12 miles of existing 69-kV transmission line, rebuilding of 0.9 mile of a 230-kV transmission line, and rebuilding of 1.1 miles of an existing 138-kV transmission line into a new right-of-way. The B2H project is designed to withstand a wide range of physical conditions and extreme events. Because transmission lines are so vital to our electrical grid, design standards are stringent. B2H will adhere to, and in most cases, exceed, the required codes or standards observed for high voltage transmission line design. This approach to the design, construction, and operation of the B2H project will establish utmost reliability for the life of the transmission line.

Q. What are the components of a transmission line?

A. The basic components of a transmission line are the structures/towers, conductors, insulators, foundations to support the structures, and shield wires to prevent lightning from striking conductors. See Idaho Power/201 for a cross-section of a transmission tower. For a single-circuit transmission line, such as B2H, power is transmitted via three phase conductors (a phase can also have multiple conductors, called a bundle configuration). These conductors are typically comprised of a steel core to give the conductor tensile strength and reduce sag and of aluminum outer strands. Aluminum is used because of its high conductivity to weight ratio.

Shield wires, typically either steel or aluminum and occasionally including fiber optic cables inside for communication, are the highest wires on the structure. Their main purpose is to protect the phase conductors from a lightning strike. Structures are designed to support the phase conductors and shield wires and keep them safely in the air. For the B2H project, structures will primarily be steel lattice tower structures, which provide an economical means to support large conductors for long spans over long distances.[1] The typical structure height for B2H is approximately 160 feet tall, but structure height will vary depending on location, with a structure located roughly every 1,400 feet on average. The tower height and span length were optimized to minimize ground impacts and material requirements; taller structures could allow for longer spans (fewer structures on average per mile) but would be costlier due to material requirements. Again, the B2H tower and conductors were engineered to maximize benefits and minimize costs and impacts.

Q. Are there guidelines or standards for which the structure of a transmission line is designed?

A. Yes. Overhead transmission lines have been in existence for over 100 years, and many codes and regulations govern the design and operation of transmission lines. Safety, reliability, and electrical performance are all incorporated into the design of transmission lines. Several notable standards include the: (1) American Concrete Institute 318—*Building Code Requirements for Structural Concrete*, (2) American National Standards Institute standards (for material specifications), (3) American Society of Civil Engineers (ASCE) Manual No.74—*Guidelines for Electrical Transmission Line Structural Loading*, (4) National Electrical Safety Code (NESC), (5) Occupational Safety and Health Administration 1910.269 April 11, 2014 (for worker

[1] H-frame towers, rather than lattice towers, will be used in certain locations to mitigate potential impacts to visual resources.

safety requirements), and (6) National Fire Protection Association 780—*Guide for Improving the Lightning Performance of Transmission Lines*. NESC provides for minimum guidelines and industry standards for safeguarding persons from hazards arising from the construction, maintenance, and operation of electric supply and communication lines and equipment. The B2H project will be designed, constructed, and operated at standards that meet, and in most cases exceed, the provisions of NESC, as evidenced in my declaration included as Idaho Power/202.

Q. Why is Idaho Power designing and constructing the B2H project to exceed NESC provisions?

A. Physical loads induced onto transmission structures and foundations supporting the phase conductors and shield wires for the B2H project are derived from three phenomena: wind, ice, and tension. Under certain conditions, ice can build up on phase conductors and shield wires of transmission lines. When transverse wind loading is also applied to these iced conductors, it can produce structural loading on towers and foundations far greater than normal operating conditions produce. Design weather cases for the B2H project exceed the requirements in the NESC. As an example, for a high wind case, NESC recommends 90 miles per hour (mph) winds. The criteria proposed for the B2H project is 100 mph wind on the conductors and 120 mph wind on the structures. There are multiple loading conditions that will be incorporated into the design of the B2H project, including unbalanced longitudinal loads, differential ice loads, broken phase conductors, broken sub-phase conductors, heavy ice loads, extreme wind loads, extreme ice and wind loads, construction loads, and full dead-end structure loads.

Q. What is the design of the transmission line foundation?

A. The 500-kV single-circuit lattice steel structures require a foundation for each leg of the structure. The foundation diameter and depth shall be determined during final design and are dependent on the type of soil or rock present. The foundations will be designed to comply with the allowable bearing and shear strengths of the soil where placed. Soil borings shall be taken at key locations along the project route, and subsequent soil reports and investigations shall govern specific foundation designs as appropriate.

Q. Are there guidelines or standards for design of transmission line foundations?

A. Yes. The 2017 NESC Rule 250A4 observes the structure capacity obtained by designing for NESC wind and ice loads at the specified strength requirements is sufficient to resist earthquake ground motions. Additionally, ASCE Manual No. 74 states transmission structures need not be designed for ground-induced vibrations caused by earthquake motion. Historically, transmission structures have performed well under earthquake events,[2] and transmission structure loadings caused by wind/ice combinations and broken wire forces exceed earthquake loads. It is common industry practice to design transmission line structures to withstand wind and ice loads that are equal to, or greater than, these NESC requirements.

Q. How does the potential for lightning impact the design?

A. The B2H project is in an area that historically experiences 20 lightning storm days per year,[3] which is relatively low compared to other parts of the United States. The transmission line will be designed to not exceed a lightning outage rate of one per 100 miles per year. This will be accomplished by using proper shield wire placement and structure/shield wire grounding to adequately dissipate a lightning strike on the shield wires or structures if it were to occur. The electrical grounding requirements for the

[2] Risk Assessment of Transmission System under Earthquake Loading. J.M. Eidinger, and L. Kemper, Jr. Electrical Transmission and Substation Structures 2012, Pg. 183-192, ASCE 2013; *see also* Earthquake Resistant Construction of Electric Transmission and Telecommunication Facilities Serving the Federal Government Report. Felix Y. Yokel. Federal Emergency Management Agency (FEMA). September 1990.

[3] USDA RUS Bulletin 1751-801.

project will be determined by performing ground resistance testing throughout the project alignment, and by designing adequately sized counterpoise or using driven ground rods with grounding attachments to the steel rebar cages within the caisson foundations as appropriate.

Q. What measures have been taken with respect to the B2H project design for earthquakes?

A. Experience has demonstrated that high-voltage transmission lines are very resistant to ground-motion forces caused by earthquake, so much so that national standards do not require these forces be directly considered in the design. However, secondary hazards can affect a transmission line, such as landslides, liquefaction, and lateral spreading. The design process considers these geologic hazards using multiple information streams throughout the siting and design process. For the final route, Idaho Power evaluated geologic hazards using available geographic information system data, such as fault lines, areas of unstable and/or steep soils, mapped and potential landslide areas, etc. Towers located within potential geologic hazard areas are investigated further to determine risk. Additional analysis may include field reconnaissance to gauge the stability of the area and subsurface investigation to determine the soil strata and depth of hazard.

Q. Did the Company identify any geologic hazards that would be of risk to the structure?

A. At this time, no high-risk geologic hazard areas have been identified. If, during the process of final design, an area is found to be high-risk, the first option would be to microsite, route around, or span over the hazard. If avoidance is not feasible, the design team would seek to stabilize the hazard. Engineering options for stabilization include designing an array of sacrificial foundations above the tower foundation to anchor the soil or improving the subsurface soils by injecting grout or outside aggregates into the ground. If the geotechnical investigation determines the problematic soils are relatively shallow, the tower foundations can be designed to pass through the weaker soils and embed into competent soils.

Q. Please describe Idaho Power's plans to reduce risks associated with wildfire during operation of the B2H project.

A. Idaho Power has developed a Wildfire Mitigation Plan (WMP).[4] This plan details how the Company uses situational awareness of wildfire and weather conditions to change the way the system is operated. It also includes best practices that internal and contract crews follow for construction and maintenance activities during wildfire season, vegetation management practices, and transmission system and distribution system hardening efforts. B2H has been included in this analysis as part of the planning process. Idaho Power filed an updated WMP with the Public Utility Commission of Oregon (Commission) by December 31, 2021, which included a Public Safety Power Shutoff plan that defines proactive de-energization of electric transmission and/or distribution facilities during extreme weather events to reduce the potential of those electrical facilities becoming a wildfire ignition source or contributing to the spread of wildfires. Idaho Power submitted a revised plan on June 28, 2022, in Docket UM 2209, with additional information requested by the Commission, which was approved with Order No. 22-312 on August 26, 2022. The wildfire risk along the B2H project route was assessed as part of the plan. This plan will be reviewed annually and updated with new information and lessons learned as required.

Q. Will the B2H project remain operational in the event of a wildfire?

[4] 2022 Wildfire Mitigation Plan (idahopower.com)

A. The transmission line steel structures are constructed of non-flammable materials, so wildfires do not pose a physical threat to the transmission line itself. However, heavy smoke from wildfires in the immediate area of the transmission line can cause flashover/arcing between the phase conductors and electrically grounded components. Standard operation is to de-energize transmission lines when fire is present in the immediate area of the line. Transmission lines generally remain in-service when smoke is present from wildfires not in the immediate vicinity of the transmission line. When compared to other resource alternatives, the B2H project may be more resilient to smoke. For example, the recent forest fire events in the Pacific Northwest caused smoke along the proposed B2H corridor and in the Pacific Northwest in general. While generation from solar photovoltaic would likely operate at a much-reduced capacity, the B2H project would likely still operate so long as the fires are not in the immediate area.

Q. Are there any other hazards the B2H project design must take into account?

A. As I mentioned earlier, the B2H project is designed to withstand extreme wind loading combined with ice loading. With respect to landslides, Idaho Power avoided steep, unstable slopes through the siting and design process, especially where evidence of past landslides is evident. During the preliminary construction phase, geotechnical surveys and ground surveys (light detection and ranging surveys) help verify potentially hazardous conditions. If a potentially hazardous area cannot be avoided, the design process will seek to stabilize the area. Finally, identification and avoidance of flood zones was incorporated into the siting process and will be further incorporated into the design process. Foundations and structures will be designed to withstand anticipated flood conditions.

Q. Was any consideration made in the event of a direct physical attack?

A. Yes. A direct physical attack on the B2H transmission line will remove the line's ability to deliver power to customers. In the case of a direct attack, B2H is fundamentally no different than any other supply-side resource under a direct physical attack. However, because the B2H project is connected to the transmission grid, a direct physical attack on any specific generation site in the Pacific Northwest or Mountain West region will not limit the B2H project's ability to deliver power from other generation in the region. In this context, the B2H project provides additional ability for generation resources to serve load if a physical attack were to occur on a specific generation resource or location within the region and therefore increases the resiliency of the electric grid as a whole.

If a direct physical attack were to occur on the B2H transmission line and force the line out of service, the rest of the grid would adjust to account for the loss of the line. Per the Western Electricity Coordinating Council facility rating process, the B2H capacity rating is such that an outage of the B2H line would not overload any other system element beyond equipment emergency ratings. Idaho Power also keeps a supply of emergency transmission towers that can be very quickly deployed to replace a damaged tower allowing the transmission line to be quickly returned to service. Transmission lines add to the resiliency of the grid by providing additional paths for electricity should one or more generation resources or transmission lines experience a catastrophic event.

Q. Is there any incremental value the B2H project may provide in the event of emergency conditions?

A. During non-emergency conditions, the transfer capability between the Pacific Northwest and Idaho will be limited by real-time-contingency-analysis to ensure a single transmission system element outage does not result in overloading any remaining element above its emergency rating (i.e. loss of the B2H project does not result in a remaining system element overloaded above its emergency rating). Per North American Electric Reliability Corporation (NERC) requirement TPL-001-4, the system must be designed to accommodate single contingency element losses without using load tripping as mitigation. However, during emergency conditions, transfers across the B2H project could be increased above the normal rating by implementing a remedial action scheme to shed generation and/or load if the B2H project was forced out of service unexpectedly, also pursuant to NERC TPL-001-4 for emergency conditions starting from an outage scenario.

II. SITING AND PERMITTING

Q. When did siting and permitting of the B2H project begin?

A. In 2007, Idaho Power filed a Preliminary Draft Application for Transportation and Utility Systems and Facilities on Federal Lands and began scoping routes. The following year, in 2008, the Company submitted application materials to the Bureau of Land Management (BLM) as the lead agency for the federal National Environmental Policy Act (NEPA) review and a Notice of Intent to the Energy Facility Siting Council (EFSC or Council). The NEPA and EFSC processes are separate and distinct permitting processes and not necessarily designed to work simultaneously. At a high level, the NEPA Environmental Impact Statement (EIS) process provides a comparative analysis of potential alternatives and ultimately identifies an Agency Preferred Alternative at the end of the process. The comparative analysis is conducted at a “desktop” level. Information is brought into the process on a phased approach. A more detailed analysis must be conducted on the final route prior to construction, which generally occurs once final design is complete. On the other hand, the Oregon EFSC process is a standards-based process based on a fixed site boundary. For a linear facility, like a transmission line, the process requires the transmission line boundary to be established (one or more routes selected) and fully evaluated to determine if the project meets established standards.

Q. What occurred when the application was submitted to the BLM?

A. The BLM responded with a Notice of Intent to prepare an EIS, officially initiating the BLM-led federal NEPA process. It was at this time that Idaho Power embarked on a more extensive public outreach program to determine the transmission line route.

Q. Did the Company involve public participation when determining the route for the B2H project?

A. Yes. In 2009, Idaho Power paused the NEPA and EFSC activities to work with community members throughout the siting area to identify a proposed route that would be acceptable to both the Company and the public. The year-long community advisory process (CAP) had four objectives and steps: (1) identify community issues and concerns, (2) develop a range of possible routes that address community issues and concerns, (3) recommend proposed and alternate routes, (4) follow through with communities during the federal and state review processes. Through the CAP, Idaho Power hosted 27 Project Advisory Team meetings, 15 public meetings, and 7 special topic meetings. In all, nearly 1,000 people were involved in the CAP, either through Project Advisory Team activities or public meetings.

Q. Was a proposed route selected through the CAP process?

A. Yes. Forty-nine routes and/or route segments were considered through the CAP, a map of those routes is included as Attachment 3 to the Petition, and ultimately the route recommendation from the CAP was the route Idaho Power brought into the NEPA process as the proponent-recommended route, submitted in 2010. A map of the final route resulting from the CAP is included as Attachment 4 to the Petition.

Q. What occurred following conclusion of the CAP?

A. With a final route recommendation developed through the CAP, Idaho Power resubmitted the proposed route to the BLM and published its B2H Siting Study. At this point, the Company also filed a new Notice of Intent with EFSC.

Q. Was this the end of public involvement in the final selection of the B2H project's route?

A. No, public involvement and outreach continued for years. The NEPA process, which the BLM re-initiated following the Company's resubmittal of a proposed route, included additional opportunities for public comment at major milestones, and Idaho Power worked with landowners and communities along the way. Throughout this process, Idaho Power worked with landowners, stakeholders, and jurisdictional leaders on route refinements and to balance environmental impacts with impacts to farmers and ranchers. For example, Idaho Power met with the original "Stop Idaho Power" group in Malheur County to help the group effectively comment and seek change from the BLM when the Draft EIS indicated a preference for a route across Stop Idaho Power stakeholders' lands. The BLM's decision was modified, and the route moved away from an area of highly valued agricultural lands in the Final EIS almost two years later.

Idaho Power also worked with landowners in the Baker Valley, near the National Historic Oregon Trail Interpretive Center (NHOTIC), to move an alternative route along fence lines to minimize impacts to irrigated farmland, where practicable.

This change was submitted by the landowners and included in the BLM's Final EIS and ultimately the Record of Decision. Another change in Baker County was in the Burnt River Canyon and Durkee area, where Idaho Power worked with the BLM and affected landowners to find a more suitable route than what was initially identified as the preferred route in the Draft EIS. Idaho Power has worked with landowners and local jurisdictional leaders to microsite in these areas to minimize impacts.

Finally, in Union County Idaho Power worked with local jurisdictional leaders and stakeholder groups to identify new route opportunities. The Union County B2H Advisory Committee agreed to submit a route proposal to the BLM that followed existing high-voltage transmission lines, which was later identified as the Mill Creek Alternative. In that same area, Idaho Power proposed the Morgan Lake Alternative as an alternative to the Mill Creek Route, providing a route that was farther from and not visible from the City of La Grande.

Q. What was the status of the EFSC application at this time?

A. In 2012, concurrent with the BLM NEPA process, the Oregon Department of Energy (ODOE) conducted informal meetings, solicited comments, and issued a Project Order outlining the issues and regulations Idaho Power must address in its Application for Site Certificate (ASC). Also, due to the route modifications and refinements submitted to the BLM, the Company issued a Siting Study Supplement, and began conducting field surveys for the ASC. Idaho Power submitted to ODOE its preliminary ASC in 2013, which included a request that the site certificate include and govern the local land use approvals related to siting.

Q. Had the BLM-led NEPA process concluded at this point?

A. No. In 2013, the BLM released the preliminary preferred route alternatives and began preparing their Draft EIS, which was issued on December 19, 2014, identifying an Agency Preferred Alternative.

Q. Was the route proposed through the CAP the final route selected by the BLM?

A. No. The route preferences of Idaho Power and the local communities are not always reflected in the BLM's Agency Preferred route. For example, Idaho Power had worked in the Baker County area to propose a route on the backside of the NHOTIC to minimize visual impacts, and in the Brogan area to avoid landowner impacts. However, both route variations went through priority sage grouse habitat and were not adopted in BLM's Agency Preferred route. However, the Company worked with Umatilla County, local jurisdictional leaders, and landowners to identify a new route through the entire county, essentially moving the line further south and away from residences, ranches, and certain agriculture. This southern route variation through Umatilla County was later included as part of the BLM's final Agency Preferred route.

Q. What occurred following issuance of the Draft EIS?

A. The BLM's issuance of the Draft EIS kicked off the opening of a 90-day comment period. The BLM hosted open houses for the public to learn about the Draft EIS, route alternatives, and environmental analysis. On November 22, 2016, the BLM issued the Final EIS, identifying an environmentally preferred route alternative and an Agency Preferred route alternative. Portions of the preferred route were incorporated into the EFSC application and a routing solution on Navy-owned land for an easement on the Naval Weapons System Training Facility in Boardman, Oregon. Field surveys necessary for the EFSC application continued to be conducted. In 2017, the Company submitted an Amended ASC to ODOE. On November 17, 2017, the BLM released its record of decision for the B2H project, authorizing the BLM to grant a right-of-way to

Idaho Power for the construction, operation, and maintenance of the B2H project on BLM-administered land. The right-of-way was granted on January 9, 2018.

Q. Were any additional decisions required with respect to rights-of-way for the B2H project?

A. Yes. The BLM's record of decision triggered United States Forest Service (USFS) and Navy decision activities. The USFS and Navy issued their own separate decisions regarding rights-of-way across lands under their jurisdictions on November 13, 2018, and September 26, 2019, respectively. With issuance of the Navy record-of-decision, after nearly 10 years, the B2H project had secured the major federal right-of-way approvals.

Q. Was the final B2H project route proposed by the Company in the EFSC ASC the route proposed by the BLM?

A. No. The route Idaho Power submitted to the EFSC as part of the ASC is very similar to the BLM's Agency Preferred route. When the ASC was finalized, which was prior to issuance of the Final EIS, Idaho Power included two alternative route segments in the La Grande area, called the Morgan Lake Alternative and the Mill Creek Alternative/Proposed Route. The BLM's Agency Preferred route in that area was similar to a prior route concept that was called the Glass Hill Alternative. Additionally, the EFSC application included alternative route segments at the northern end of the B2H project, near the Boardman Bombing Range, and toward the southern end of the of the B2H project in Malheur County near the Double Mountain Wilderness Characteristic Unit. Attachment 7 to the Petition includes the maps submitted with the EFSC application.

Q. What is the current status of the Council's review of the Company's ASC?

A. In July 2020, ODOE issued its Proposed Order, proposing approval of the B2H project subject to certain conditions. However, certain members of the public objected to aspects of the proposed order, and EFSC initiated a contested case hearing process to consider the issues that those members of the public raised. The contested case spanned nearly two years and included exchange of discovery, live depositions, submission of written testimony, live cross-examination hearings, and extensive briefing. On May 31, 2022, at the conclusion of the contested case, the hearing officer issued a Proposed Contested Case Order, proposing approval of the B2H project subject to certain conditions.[5] The Council held a three-day hearing to consider the parties' exceptions to the Proposed Contested Case Order, and provided direction to ODOE regarding modifications to the Proposed Order and the Proposed Contested Case Order. ODOE implemented the Council's direction and issued the draft Final Order on September 16, 2022, and on September 27, 2022, EFSC made its final decision approving the B2H project subject to certain conditions. Idaho Power understands that EFSC will issue the Final Order and Site Certificate on or around September 30, 2022.

Q. What additional permits and land use approvals are necessary for siting the B2H project?

A. Attachment 16 to the Petition identifies the federal, state, and local permits needed for construction and operation of the B2H project in Oregon. Additionally, in Idaho, the Company will need a conditional use permit from Owyhee County. The permits and approvals beyond those I have discussed are in various stages of their respective application and approval processes, the status of which is also presented in Attachment 16 to the Petition. However, the Final Order and Site Certificate include

[5] See Idaho Power/203, Barretto/1200 (Administrative Law Judge's Proposed Contested Case Order, page 296 of 337 (May 31, 2022)) ("I propose the Oregon Department of Energy, Energy Facility Siting Council, issue a Final Order granting the requested site certificate consistent with the Department's Proposed Order dated July 2, 2020, including the recommended site certificate conditions, and incorporating the following amendments to recommended conditions: . . . .") (provided as Attachment 2 to Idaho Power's Response to Standard Data Request No. 12).

the land use approvals (and related conditions) for the B2H project, and in accordance with ORS 469.401(3), following issuance of the site certificate, the state and local agencies will issue the permits and land use approvals governed by the site certificate without further hearings or other proceedings.

Q. What is the final proposed route for which the Company is seeking condemnation authority?

A. The route depicted in Attachment 2 to the Petition represents Idaho Power's final route choice among the alternatives approved by EFSC, which includes the Morgan Lake Alternative and the West of Bombing Range Alternative 1 routes. The Company is seeking condemnation authority only for properties along the final route choice, and not for alternative segments included in the EFSC application but not chosen as part of the final route.

Q. How did Idaho Power determine the final route among the approved alternative options?

A. Idaho Power initially proposed the Mill Creek Route in response to the request by Union County that the B2H project be routed parallel to the existing 230-kV transmission line. In that same area, Idaho Power proposed the Morgan Lake Alternative as an alternative to the Mill Creek Route, providing a route that was farther from and not visible from the City of La Grande. Based on feedback Idaho Power received from the local community and given EFSC approved both routes, Idaho Power has decided to develop the Morgan Lake Alternative and not the Mill Creek Route.

III. B2H PROJECT ROUTE IMPACT EVALUATIONS

Q. Did Idaho Power evaluate the potential impact of the B2H project on topography, geology, stream crossings, or other similar conditions?

A. Yes. With respect to hydrologic systems, the Company anticipates the impact will be minimal. For example, any temporary impacts to regulated waters will be mitigated by restoring the sites to existing conditions, and the total amount of permanent impacts will be less than 0.5 acres.[6] To mitigate those impacts, Idaho Power has acquired the rights to develop a wetland and stream restoration project along Catherine Creek, a tributary to the Grande Ronde River.[7]

The Company does not anticipate that construction-related blasting activity will impact landowners' springs, wells, or other water sources. However, to address any concerns the landowners may have regarding the same, Idaho Power will test water sources if requested, as memorialized in the site certificate condition, Soil Protection Condition 4.b.[8]

Geological hazards are addressed in the ASC as well. The B2H project will be designed in accordance with multiple applicable engineering and building standards, which address, directly or indirectly, hardness of rock and other geological

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[6] As detailed in Idaho Power/203, Barretto/22 (Exhibit J (Waters of the State) to Idaho Power's ASC, page J-16 (Sept. 28, 2018)) (provided as Attachment 1 to the Company's Response to Standard Data Request No. 1).

[7] As detailed in Idaho Power/203, Barretto/23-24 (Exhibit J (Waters of the State) to Idaho Power's ASC, page J-17 to J-18 (Sept. 28, 2018)) (provided as Attachment 1 to the Company's Response to Standard Data Request No. 1).

[8] As detailed in *In re Application for Site Certificate for the Boardman to Hemingway Transmission Line*, Energy Facility Siting Council, Draft Final Order, Attachment 1: Draft Site Certificate at 11-12 (Sept. 16, 2022) (available at https://www.oregon.gov/energy/facilities-safety/facilities/Facilities%20library/2022-09-16-Attachment-1-Draft-Site-Certificate-Conditions.pdf) (last visited Sept. 30, 2022).

considerations.[9] Additionally, Idaho Power is required to prepare, in consultation with the Oregon Department of Geology and Mineral Industries, a geologic report that addresses the suitability of the site for the B2H project and any mitigation measures.[10] While the final mitigation measures will be refined prior to construction based on site-specific geological testing, generally, those measures will include modifications to tower locations, design changes to structure foundations, soil amendments, or tower design modifications.

Q. Were any mitigation measures implemented for scenic or recreational resources?

A. Yes. Per an agreement with the City of La Grande, the Company will provide funding to the city for recreational improvements at Morgan Lake Park.[11] Additionally, Idaho Power will construct the B2H project segment near Morgan Lake Park using shorter, H-frame towers with a weathered steel finish to reduce visual impacts to the park.[12]

Similarly, in the vicinity of the NHOTIC and the Birch Creek Area of Critical Environmental Concern, Idaho Power will construct the B2H project using shorter, H-frame towers instead of lattice towers to reduce the visual impacts to these resources.[13]

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[9] See Idaho Power/203, Barretto/227 (Exhibit H (Geological Hazards and Soil Stability) to the Company's ASC, page H-21 (Sept. 28, 2018)) (provided as Attachment 2 to Idaho Power's Response to Standard Data Request No. 1).

[10] See Idaho Power/203, Barretto/210-11,244 (Exhibit H (Geological Hazards and Soil Stability) to Idaho Power's ASC, pages H-4 to H-5 and Engineering Geology and Seismic Hazards Supplement, Attachment H-1 to Idaho Power's ASC) (provided as Attachment 2 to Idaho Power's Response to Standard Data Request No. 1).

[11] See *In re Application for Site Certificate for the Boardman to Hemingway Transmission Line*, Energy Facility Siting Council, Draft Final Order at 282 (Sept. 16, 2022) (available at https://www.oregon.gov/energy/facilities-safety/facilities/Facilities%20library/2022-09-16-B2HAPP-Draft-Final-Order-on-ASC.pdf) (last visited Sept. 29, 2022) [hereinafter "EFSC Draft Final Order"].

[12] *Id.* at 567.

[13] *Id.* at 458.

Q. Were potential cultural, environmental or agricultural impacts evaluated?

A. Yes. To receive a site certificate from EFSC, the B2H project must undergo a thorough review and meet the Council's siting standards. Those standards address issues such as soil protection, land use, protected areas, fish and wildlife habitat, threatened and endangered species, scenic resources, historic, cultural, and archaeological resource, recreation opportunities, public services, waste minimization, and others.[14] Idaho Power addressed the EFSC standards in the Company's ASC, where Idaho Power analyzes the B2H project's potential impacts on those resources and describes the measures the Company will employ to avoid, minimize, or mitigate the potential impacts. Some of the potential impacts that were analyzed and the commitments the Company has made to address those potential impacts include:

Historic, cultural, and archaeological resources: Idaho Power conducted extensive records research, literature review, and field surveys to inventory the historic, cultural, and archaeological resources that potentially will be impacted by the B2H project.[15] For identified resources, Idaho Power will implement measures to avoid or minimize adverse impacts, including relocation of structures through the design process, realignment of the route, relocation of temporary workspace, or changes in the construction and/or operational design. Where impacts are unavoidable, Idaho Power will implement mitigation actions set forth in a Historic Properties Management Plan, which was developed in coordination with various governmental agencies, including environmental training, data recovery, analysis, documentation, curation,

[14] See OAR Chapter 345, Division 22.

[15] See Idaho Power/203, Barretto/1245-54 (Exhibit S (Historic, Cultural, and Archeological Resources) to Idaho Power's ASC, pages S-21 through S-28) (provided as Attachment 1 to the Company's Response to Standard Data Request No. 15).

resource-specific treatments, restoration, public signage, publication, and interpretive planning.[16]

Fish and wildlife habitat: Idaho Power catalogued the various types of fish and wildlife habitat potentially impacted by the B2H project through desktop analysis and ground surveys.[17] To avoid and minimize impacts to fish and wildlife habitat, the Company will implement seasonal work restrictions, map and flag sensitive resources, and implement various other measures set forth in the Company's Reclamation and Revegetation Plan, Vegetation Management Plan, and Noxious Weed Plan.[18] Unavoidable impacts will be addressed through compensatory mitigation, as outlined in the Fish and Wildlife Habitat Mitigation Plan.[19]

In addition, to avoid and minimize impacts to avian species during construction, Idaho Power will limit construction activities to time periods outside of the primary migratory bird nesting season of April 1 to July 15, unless the Company conducts surveys immediately prior to such activities to identify avian nests to avoid, as memorialized in the proposed EFSC site certificate conditions, Fish and Wildlife

[16] See Idaho Power/203, Barretto/1253 (Historic Properties Management Plan, Attachment S-9 to the ODOE's Proposed Order (July 2, 2020) (ODOE's Proposed Order)) (provided as Attachment 2 to the Company's Response to Standard Data Request No. 15).

[17] See Idaho Power/203, Barretto/1389-99 (Exhibit P1 (Fish and Wildlife Habitat) to Idaho Power's ASC, pages P1-21 through P1-31) (provided as Attachment 3 to the Company's Response to Standard Data Request No. 15).

[18] See Idaho Power/203, Barretto/1400-04 (Exhibit P1 (Fish and Wildlife Habitat) to Idaho Power's ASC, pages P1-86 through P1-90) (included as Attachment 3 to the Company's Response to Standard Data Request No. 15); Idaho Power/203, Barretto/1405 (Reclamation and Revegetation Plan, Attachment P1-3 to ODOE's Proposed Order) (provided as Attachment 4 to the Company's Response to Standard Data Request No. 15); Idaho Power/203, Barretto/1457 (Vegetation Management Plan, Attachment P1-4 to ODOE's Proposed Order) (provided as Attachment 5 to the Company's Response to Standard Data Request No. 15); and Idaho Power/203, Barretto/1605 (Noxious Weed Plan, Attachment P1-5 to ODOE's Proposed Order) (provided as Attachment 6 to the Company's Response to Standard Data Request No. 15).

[19] See Idaho Power/203, Barretto/1642 (Fish and Wildlife Mitigation Plan, Attachment P1-6 to ODOE's Proposed Order) provided as Attachment 7 to the Company's Response to Standard Data Request No. 15).

Condition 13, Fish and Wildlife Condition 14, and Fish and Wildlife Condition 20.[20] During operations, Idaho Power will implement its Avian Protection Plan, which includes mitigation measures to be taken if avian mortalities are discovered along the transmission line and modifications to the line that can be made if elevated mortalities of avian species are discovered.[21] With respect to bat species, Idaho Power avoided and minimized impacts by siting the Project to avoid mines, caves, and known bat hibernacula.[22] Additionally, if previously unidentified hibernacula are located, Idaho Power will develop additional avoidance, minimization, and mitigation measures in consultation with the Oregon Department of Fish and Wildlife, as set forth in the proposed site certificate condition identified as Fish and Wildlife Condition 12.[23]

Land use: Idaho Power analyzed, and demonstrated compliance with, the affected cities and counties' comprehensive plans and development codes.[24] The Company addressed potential impacts to agricultural operations in particular in the Company's Agricultural Lands Assessment.[25] In that document, Idaho Power includes various measures the Company will undertake to avoid, minimize, and mitigate impacts to agricultural lands and operations, including locating towers outside

[20] EFSC Draft Final Order at 381-82, 405.

[21] See Avian Protection Plan at 15, Attachment P1-9 to ODOE's Proposed Order page 27 (provided with the Company's Response to Standard Data Request No. 15) (available at https://www.oregon.gov/energy/facilities-safety/facilities/Facilities%20library/2022-09-16-Attachment-P1-9-Avian-Protection-Plan.pdf) (last visited Sept. 30, 2022).

[22] See Exhibit P1 (Fish and Wildlife Habitat) to Idaho Power's ASC, page P1-70 (Sept. 28, 2018) (provided with the Company's Response to Standard Data Request No. 15) (available at https://www.oregon.gov/energy/facilities-safety/facilities/Facilities%20library/2018-09-28-B2H-ASC-Exhibit-P1-Part-1-Main-to-Attach-P1-6.pdf) (last visited Sept. 30, 2022).

[23] EFSC Draft Final Order at 380.

[24] See Idaho Power/203, Barretto/1810 (Exhibit K (Land Use) to Idaho Power's ASC) (provided as Attachment 8 to the Company's Response to Standard Data Request No. 15).

[25] See Idaho Power/203, Barretto/2424 (Agricultural Lands Assessment, Attachment K-1 to ODOE's Proposed Order) (provided as Attachment 9 to the Company's Response to Standard Data Request No. 15).

cultivated fields where feasible, scheduling construction activities around agricultural operations, avoiding damage to drainage tiles, restoring compacted soils, noxious weed control, and other measures.[26]

Idaho Power has made a tremendous effort to design the route of the transmission line to avoid irrigated areas and has sited towers along agricultural field boundaries where feasible. Of the approximately 1,461 transmission towers along the proposed route, only 26 are proposed to be located within an irrigated portion of an agricultural field, and Idaho Power may be able to further reduce this total number through micrositing.[27] The Company is committed to working with each landowner to try to minimize impacts to farming operations where feasible for the construction of the line, and will move structures out of cultivated fields where practical.

Q. Were any statewide or local economic impacts associated construction of the B2H project evaluated?

A. Yes. The B2H project will have positive economic impacts for eastern Oregon communities include construction jobs, economic support associated with infrastructure development (e.g., lodging and food), and increased annual tax benefits to each county for project-specific property tax dollars, totaling an estimated $5.8 million.[28] In addition, Idaho Power anticipates the project will add about 500 construction jobs, which will provide a temporary increase in spending at local businesses.

As explained in Company witness Mr. Ellsworth's testimony, when energized, the B2H project will benefit local economies by providing cost-effective energy, adding

[26] *Id.* at 2496--74.

[27] *Id.* at 2458.

[28] See *In re Idaho Power Company, 2021 Integrated Resource Plan*, Docket LC 78, Idaho Power's 2021 IRP Appendix D at 48 (Feb. 16, 2022).

1,050 megawatts MW of transmission connectivity between the Bonneville Power Administration (BPA) and Idaho Power systems. Currently, the transmission connections between BPA and Idaho Power are fully committed for existing customer commitments. Along the B2H project route, Idaho Power currently serves customers in Idaho's Owyhee County and in Oregon's Malheur County and portions of Baker County. PacifiCorp, through Pacific Power, serves portions of Umatilla County. BPA provides transmission service to local cooperatives in the remainder of the project area in Morrow, Umatilla, Union, and Baker counties. Cost-effective energy also provides economic development opportunities in these areas. Finally, additional transmission capacity can create opportunities for new energy resources, which can add to the county tax base and create new jobs.

Q. Are there any negative economic impacts that may occur with construction of the B2H project?

A. The Company does not anticipate the B2H project will have any negative economic impacts at a statewide or regional level. However, Idaho Power recognizes the B2H project may have negative economic impacts on individual landowners in the form of removing timber or agricultural land from production; interference with timber, agricultural, or other land uses during construction; and impacts on land values. To address those concerns, the Company has developed management plans containing best practices to avoid, minimize, and mitigate such impacts. For example, the Company's Right-of-Way Clearing Assessment includes a multitude of actions designed to minimize and mitigate impacts to forested lands and forestry operations, including logging best management practices, fire protection practices, road maintenance and improvements, and erosion controls.[29] Additionally, Idaho Power's Agricultural Lands Assessment includes numerous minimization and mitigation efforts to address impacts to agricultural lands and operations, including tower placement modifications, coordinated construction scheduling, coordinated helicopter options, maintenance and repair of drainage tiles, remediating soil compaction, noxious weed control, topsoil separation and storage, dust control, soil erosion protection, addressing inducted voltage, livestock control measures, and protections for organic crops.[30] Finally, Idaho Power will compensate impacted landowners where the B2H project will be located for the use of their land through utility easement negotiations.

IV. B2H PROJECT COSTS

Q. Does Idaho Power have an estimate of the costs of the B2H project?

A. Yes. Based on the Company's most recent forecast, the total cost of Idaho Power's share of the B2H project on a system basis is approximately [redacted], which is made up of costs associated with the transmission facilities including a contingency, overheads, Allowance for Funds Used During Construction (AFUDC) and property taxes. The following table summarizes the cost breakdown:

Direct Costs		[redacted]	
Overheads			
Contingency			

[29] See Right-of-Way Clearing Assessment, Attachment K-2 to the Oregon Department of Energy's Proposed Order at page 16 to 21 (July 2020) (provided with the Company's Response to Standard Data Request No. 15) (available at https://www.oregon.gov/energy/facilities-safety/facilities/Facilities%20library/2022-09-16-Attachment-K-2-Right-of-Way-Clearing-Assessment.pdf) (last visited Sept. 30, 2022).

[30] See Idaho Power/203, Barretto/2465-79 (Agricultural Lands Assessment, Attachment K-1 to the Oregon Department of Energy's Proposed Order at 33 to 47) (provided with the Company's Response to Standard Data Request No. 15).

AFUDC	[redacted]	
Property Taxes		
Total		

In addition, the Company estimates ongoing operations and maintenance expenses associated with the B2H project will be minimal, approximately $300,000 per year on a system basis.

Q. Does Idaho Power have cost controls in place for the B2H project?

A. Yes. The Company has strict project cost controls for internal and external personnel. Regular monthly forecast updates, including the tracking of budgets and schedules, are part of the project controls suites that the project management team employs. During the current preconstruction phase, Idaho Power engaged a constructability consultant, Quanta Infrastructure Solutions Group (QISG), to aid in certain preconstruction reviews and tasks. This early integration of the construction team allows for constructability feedback, identification of risks, and opportunities to economize the design. As the B2H project transitions into the construction phase, all material and construction services will be competitively bid and be pulled into a guaranteed maximum price (GMP) that will serve as the construction pricing if awarded. This GMP is tied to a schedule that Idaho Power and the construction manager will have developed together that the Company, and as a result the contract, the construction manager will be responsible for meeting that schedule. Milestone dates will be tied to monetary penalties for the construction manager if key dates slip.

Q. Is the B2H project cost estimate based on executed master contracts for construction of the project?

A. No. Idaho Power has not yet selected contractors for the construction phase but anticipates issuing Requests for Proposals for materials and contractors during the first quarter of 2023. In addition, the Company anticipates selecting a construction manager in the second quarter of 2023. The B2H project cost estimate is based on Idaho Power's most recent forecast of project costs. As described in the direct testimony of Mr. Ellsworth, B2H project costs included in the modeling of the 2021 IRP were reviewed and approved by BPA and PacifiCorp, both of whom have recent 500-kV transmission line construction projects to calibrate against. In addition, Idaho Power worked collaboratively with NV Energy and Southern California Edison to calibrate the B2H project cost estimate against two recent 500-kV projects of theirs. The same process was used for determining B2H project costs presented in this Petition.

V. <u>B2H PROJECT EASEMENTS</u>

Q. What is the total cost associated with the easements for which Idaho Power requires an interest that is included in the Company's B2H project cost estimates?

A. Based on the current market value, the Company anticipates Idaho Power's share of total right-of-way costs to be approximately [redacted]. These costs are a component of the Direct Costs identified earlier in my testimony.

Q. Has Idaho Power obtained all easements necessary to build the proposed transmission line?

A. No. As discussed in the Petition, the B2H project is moving into the preliminary construction phase. In April 2022, the Company awarded a contract for constructability consulting services which indicated that construction must start in the summer of 2023 to ensure energization in time to meet the 2026 resource deficit identified in Idaho

Power's 2021 Integrated Resource Plan. The Company anticipates issuing a Request for Proposals for materials and subcontractors necessary for construction to commence in the first quarter of 2023. To begin construction in 2023, Idaho Power will need access to the affected parcels. The Company is currently negotiating with landowners in good faith to obtain options for easements, however, Idaho Power anticipates it may need to initiate condemnation proceedings to gain access to certain parcels along the B2H project route. While the Company will continue to negotiate in good faith with landowners to avoid condemnation wherever possible, Idaho Power must initiate the CPCN proceeding in order to obtain the CPCN in time for construction to commence in 2023.

Q. From how many landowners does the Company still need to obtain easements for the B2H project?

A. Attachment 10 to the Petition presents the landowners for which Idaho Power still needs to acquire an easement for the final route and access roads, as well as those landowners within the site boundary for which the Company may need to acquire an easement, approximately 168 landowners. In addition, the attachment includes maps of the parcels of land for which condemnation may be necessary.

Q. What is the total cost associated with the easements for which Idaho Power still requires an interest?

A. Idaho Power estimates the costs associated with B2H project easements or other interests in rights-of-way still to be acquired is approximately [redacted].

VI. CONCLUSION

Q. Please summarize your testimony.

A. The B2H project will be vital to the electrical grid and designed to adhere to, and in most cases, exceed, the required codes or standards observed for high voltage transmission line design to establish utmost reliability for the life of the transmission line. As part of the route determination, the Company evaluated numerous potential impacts, including topography, geology, stream crossings, cultural resources, environmental and agricultural uses. After extensive public participation, Idaho Power submitted its final proposed B2H project route including four alternative route segments to the Council. On September 27, 2022, EFSC made its final decision to approve issuance of the Final Order and Site Certificate.

The B2H project is moving into the preliminary construction phase and construction must start in the summer of 2023 to ensure energization in time to meet the 2026 resource deficit identified in Idaho Power's 2021 Integrated Resource Plan. To begin construction in 2023, Idaho Power will need access to the affected parcels. The Company is currently negotiating with landowners in good faith to obtain options for easements, however, Idaho Power anticipates it may need to initiate condemnation proceedings to gain access to certain parcels along the B2H project route. While the Company will continue to negotiate in good faith with landowners to avoid condemnation wherever possible, Idaho Power must initiate the CPCN proceeding in order to obtain the CPCN in time for construction to commence in 2023.

Q. Does this conclude your testimony?

A. Yes, it does.

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

Docket PCN 5

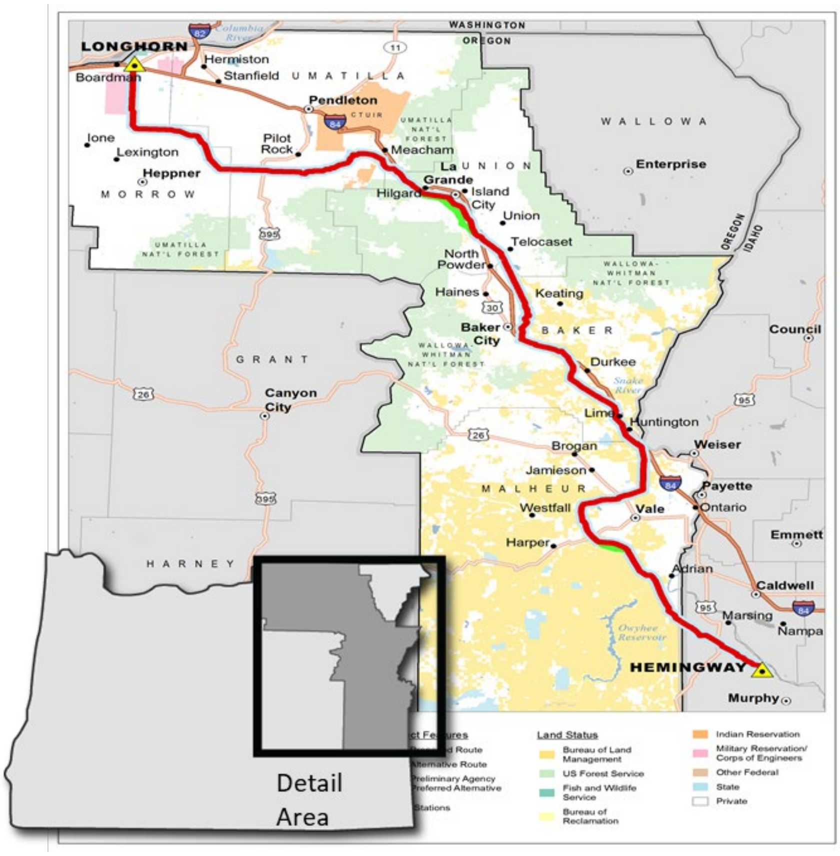
In the Matter of

IDAHO POWER COMPANY'S
PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE
AND NECESSITY

Map of B2H Region

September 30, 2022

Boardman to Hemingway Project



BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

Docket PCN 5

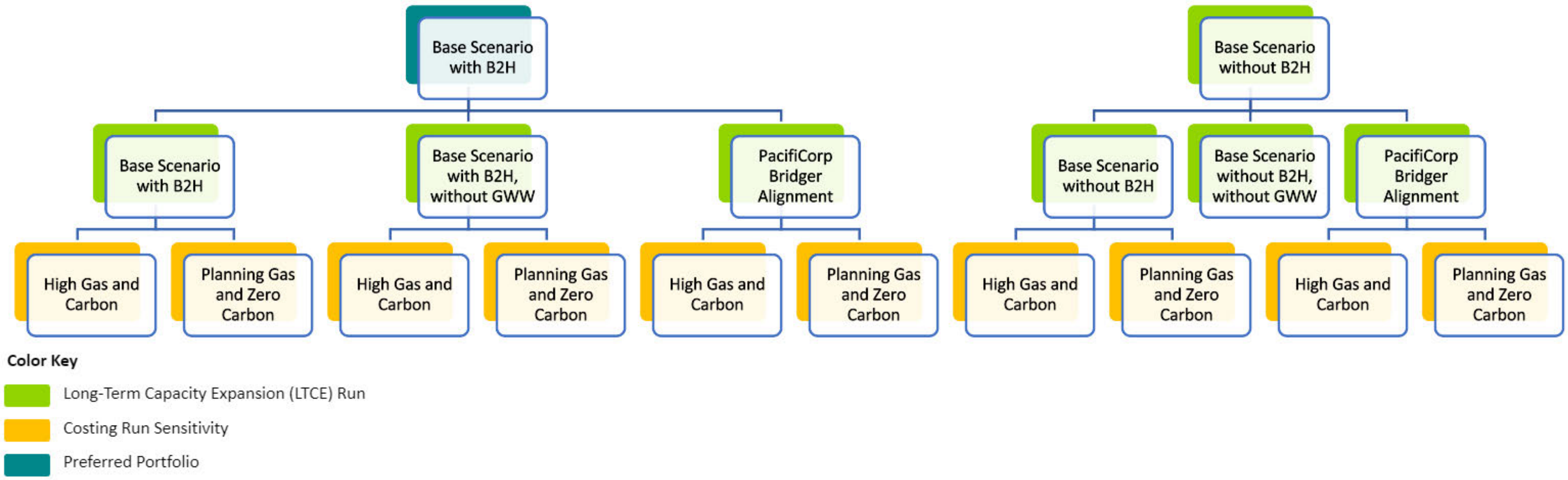
In the Matter of

IDAHO POWER COMPANY'S
PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE
AND NECESSITY

Branching Evaluation

September 30, 2022

2021 IRP: Branching Evaluation



BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

Docket PCN 5

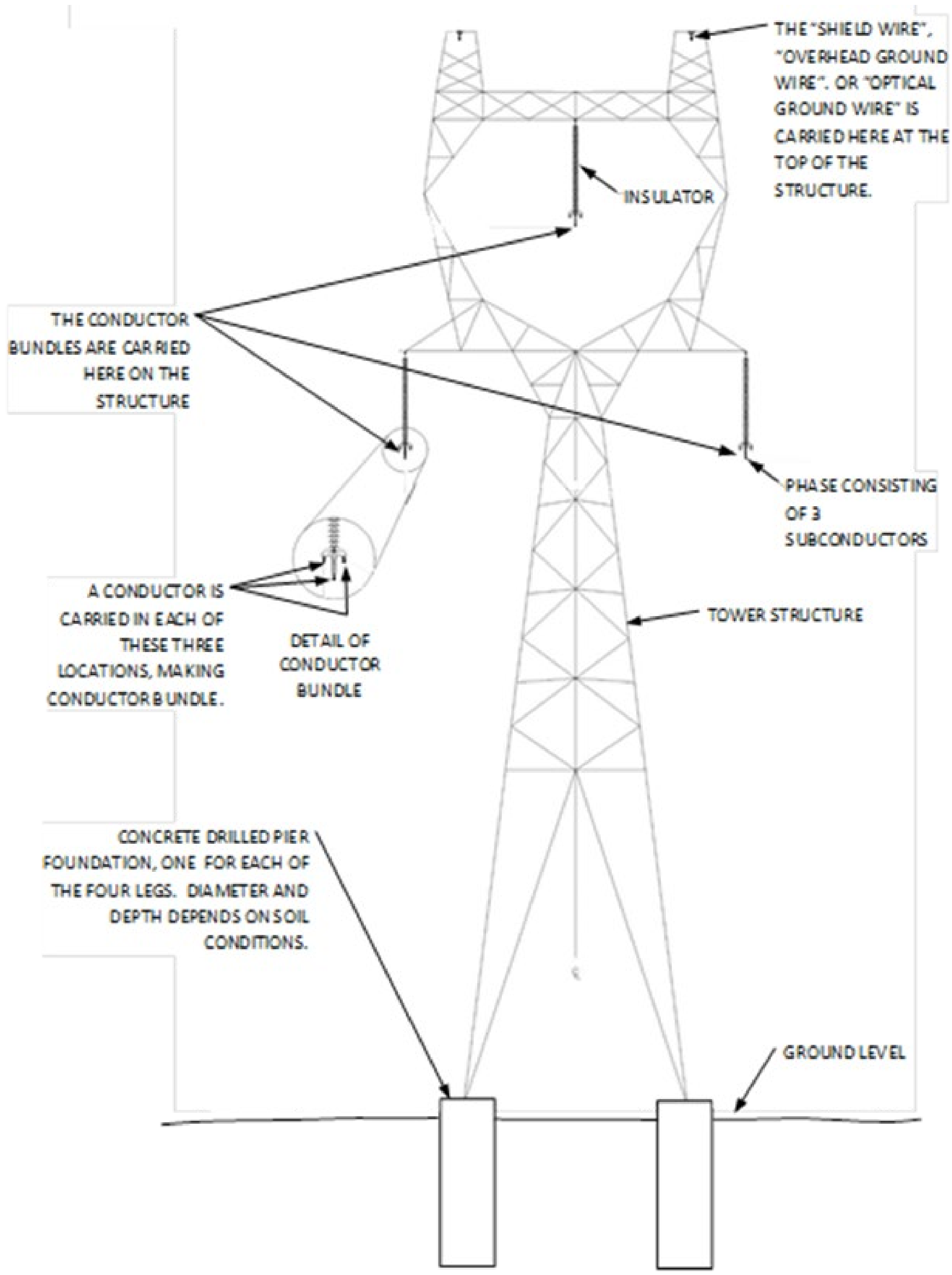
In the Matter of

IDAHO POWER COMPANY'S
PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE
AND NECESSITY

Transmission Tower Components

September 30, 2022

Transmission Tower Components



BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

Docket PCN 5

In the Matter of

IDAHO POWER COMPANY'S
PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE
AND NECESSITY

Lindsay Barretto Declaration

September 30, 2022

BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

PCN 5

In the Matter of IDAHO POWER COMPANY'S PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY.	**DECLARATION OF LINDSAY BARRETTO**

I, Lindsay Barretto, declare under penalty of perjury under the laws of the State of Oregon:

1. My name is Lindsay Barretto and I am employed by Idaho Power Company as the 500 kilovolt ("kV") and Joint Projects Senior Manager in the Power Supply Department.

2. I am a registered professional engineer in the state of Idaho.

3. As described in my pre-filed direct testimony, the Boardman to Hemingway 500-kV high voltage transmission line between the proposed Longhorn Station near Boardman, Oregon, to the existing Hemingway Substation in southwest Idaho, will satisfy the Commission's safety criterion, because it will be constructed, operated, and maintained to meet or exceed all applicable National Electrical Safety Code standards, as well as all applicable federal state and local laws, regulations, and ordinances. Further, Idaho Power has substantial experience in constructing, operating, and maintaining transmission lines in a safe, efficient manner.

Pursuant to ORS 162.055(4), I hereby declare that the above statement is true to the best of my knowledge and belief, and that I understand it is made for use as evidence before the Public Utility Commission of Oregon and is subject to penalty for perjury

SIGNED this 30th day of September, 2022, at Boise, Idaho.

Signed: Lindsay Barretto